

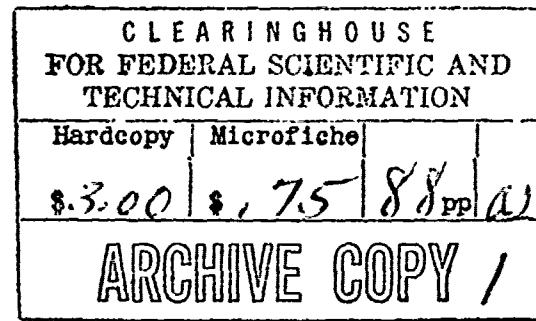
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## FORT GREELY MISSILE RANGE REFERENCE ATMOSPHERE (PART I)



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JUL 6 1968

INTER-RANGE INSTRUMENTATION GROUP  
RANGE COMMANDERS COUNCIL

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*373*  
IRIG DOCUMENT 104-63

FORT GREELY MISSILE RANGE  
REFERENCE ATMOSPHERE  
(PART I)

October 6, 1964

Prepared by

Range Reference Atmosphere Committee  
Meteorological Working Group  
Inter-Range Instrumentation Group

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## ABSTRACT

The IRIG Range Reference Atmosphere, which is presented in this document, is one in a series to be published by the Inter-Range Instrumentation Group/Meteorological Working Group. Part I contains an explanation of the basic data, computational procedures, and the resulting values tabulated for altitude intervals between mean sea level and 30 km altitude. Monthly and annual thermodynamic values and wind quantities are tabulated in Part I. The thermodynamic quantities are height (gpm), pressure ( $\text{kg f m}^{-2}$ ), pressure (mb), temperature ( $^{\circ}\text{K}$ ), virtual temperature ( $^{\circ}\text{K}$ ), density ( $\text{g m}^{-3}$ ), speed of sound ( $\text{m sec}^{-1}$ ), relative humidity (%), and vapor pressure (mb) tabulated at 250 m intervals of geometric altitude. The wind quantities are scalar wind, zonal and meridional component values (m/sec) for eleven cumulative percentage frequency levels tabulated at 1 km intervals from 0 to 27 or 30 km altitude. A separate document for Part I will be issued for each of the several IRIG Range Reference Atmospheres. Part II will extend the tabulations of Part I for seasonal and annual periods to 50 km altitude and for summer and winter periods to 90 km altitude. Not all parameters can be presented in as much detail for the 30 to 90 km altitude region as for the 0 to 30 km interval. Part III will contain information on the variability of the principal atmospheric parameters from 0 to 90 km altitude.

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## LIST OF SYMBOLS AND ABBREVIATIONS

$^{\circ}\text{C}$	degrees, in thermodynamic Celsius scale
$\text{C}_s$	speed of sound
$\text{e}_a$	actual vapor pressure
$\text{e}_s$	saturation vapor pressure with respect to water
$\text{g}$	acceleration due to gravity, also gram
$\text{gpm}$	geopotential meter
$\text{H}$	geopotential height
$\text{kg}$	kilogram (mass)
$\text{kgf}$	kilogram (force)
$\text{km}$	kilometer
$\text{M}$	mean molecular weight of air
$\text{m}$	meter
$\text{mb}$	millibar
$\text{N}$	Avogadro's number
$\text{P}$	pressure
$\text{R}^*$	universal gas constant
$\text{r}'$	parameter to convert geopotential to geometric altitude (gpm)
$\text{r}^*$	parameter to convert geopotential to geometric altitude (m)
$\text{S}$	Sutherland's constant
$\text{sec}$	second
$\text{T}$	temperature in absolute thermodynamic scales
$\text{T}_i$	ice-point temperature in absolute thermodynamic scales
$\text{T}_t$	triple point temperature of water
$\text{T}^*$	virtual temperature
$\text{t}$	temperature in nonabsolute thermodynamic scales; also, day of year
$\text{U}$	relative humidity
$\text{Z}$	altitude in geometric measure
$\beta$	constant used in Sutherland's viscosity equation
$\gamma$	ratio of specific heats
$\rho$	mass density
$\sigma$	effective collision diameter of a mean air molecule
$\Phi$	geopotential
$\phi$	geographic latitude

## FOREWORD

Atmospheric parameters are essential to the research and development of missiles and aerospace vehicles. The need for realistic atmospheric models derived from consistent basic information and tabulated in a consistent format for each of the several major missile test ranges has been recognized. An atmospheric model which is derived from statistical data from a particular geographical location is referred to as a reference atmosphere. To implement a program to satisfy this need for reference atmospheres for the several missile test ranges, the Inter-Range Instrumentation Group, Meteorological Working Group (IRIG/MG), appointed an ad hoc committee in November 1960. This committee is referred to as the IRIG Range Reference Atmosphere Committee. This committee was charged with the task of establishing reference atmospheres which would be consistent in data tabulation and derivation and would represent the average atmospheric conditions with respect to height for specific geographical locations.

The IRIG Range Reference Atmosphere Committee consists of representatives from the U. S. Air Force, U. S. Army, National Aeronautics and Space Administration, U. S. Navy and U. S. Weather Bureau. Active working members and their organizations included:

Mr. R. Leviton, Geophysics Research Directorate AFCRL, OAR  
\*Dr. A. Court, Geophysics Research Directorate AFCRL, OAR  
Mr. A. Kantor, Geophysics Research Directorate AFCRL, OAR  
Mr. A. Cole, Geophysics Research Directorate AFCRL, OAR  
Lt. Col. P. E. Romo, 4th Weather Group Det. 11, AWS  
Mr. R. Ferreil, Climatic Center, Air Weather Service, USAF  
Mr. R. Quiroz, Climatic Center, Air Weather Service, USAF  
Mr. W. L. Webb, Electronics R & D Activity, USA  
Mr. K. Jenkins, Electronics R & D Activity, USA  
Mr. M. Lowenthal, Signal Corps, R. & D Laboratory, USA  
Mr. W. Vaughan, (Chairman), George C. Marshall Space Flight Center, NASA  
Mr. O. E. Smith, (Alt. Chairman), George C. Marshall Space Flight Center, NASA  
Mr. G. Daniels, George C. Marshall Space Flight Center, NASA  
Dr. W. Nordberg, Goddard Space Flight Center, NASA  
Mr. J. Spurling, Wallops Station, NASA  
Mr. R. Tolefson, Langley Research Center, NASA  
Mr. J. Masterson, Pacific Missile Range, Navy  
Mr. H. Wobus, Navy Weather Research Facility

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\*Present affiliation Lockheed-California

Mr. V. Rockney, U. S. Weather Bureau  
Mr. L. Harrison, U. S. Weather Bureau  
Mr. B. Ratner, U. S. Weather Bureau  
Mr. S. Teweles, U. S. Weather Bureau

Committee members responsible for the preparation of principal atmospheric data for specific missile test ranges are as follows:

Atlantic Missile Range, Mr. O. E. Smith and Lt. Col. Romo

Eglin Gulf Test Range, Mr. R. Leviton and Dr. A. Court

Pacific Missile Range, Mr. J. Mastersen and Mr. H. Wobus

Wallops Test Range, Mr. J. Spurling and Mr. R. Tolefson

White Sands Missile Range, Mr. W. Webb and Mr. K. Jenkins

Fort Greely, Mr. W. Webb and Mr. K. Jenkins

Fort Churchill, Mr. W. Webb and Mr. K. Jenkins

Plans are to establish range reference atmospheres for the following locations:

1. Atlantic Missile Range
  - (a) Cape Kennedy
  - (b) Ascension Island
2. Eglin Gulf Test Range
3. Pacific Missile Range
  - (a) Point Mugu
  - (b) Eniwetok
4. Wallops Test Range
5. White Sands Missile Range
6. Fort Greely
7. Fort Churchill

All final computations were performed by the George C. Marshall Space Flight Center, Data Reduction Branch, under the technical supervision of Mr. P. Harness. The control of the final computations was under the direction of Mr. O. E. Smith.

The members of the editorial board are Mr. H. Wobus, (Chairman), Mr. A. Kantor, Mr. G. Daniels, and Mr. O. E. Smith.

Since the appointment of the IRIG Range Reference Atmosphere Committee in November 1960 continued improvement in atmospheric measurements and more frequent atmospheric measurements are rapidly advancing a better understanding of the structure of the atmosphere. This is particularly true in the altitude region between the normal ceiling of rawinsonde measurements (30 km altitude) and that of minima satellite levels near 200 km altitude. Due to this period of rapid growth in understanding the structure of the atmosphere between 30 and 200 km altitude, any detailed atmospheric model that is established at this time is very likely to be replaced when more and improved measurements are made. Therefore, any atmospheric model for altitudes above 30 km must be considered speculative. It is also realized that rapid advances in missi

and aerospace programs cannot await the final confirmation of atmospheric models by atmospheric measurements yet to be made. For these reasons the IRIG Range Reference Atmosphere Committee has decided to publish the Range Reference Atmospheres in a series of separate documents. The organization of these documents is as follows: Part I will contain information on the thermodynamic quantities and wind for each month and annual for the first 30 km altitude. Part I will be issued as a separate IRIG technical document for each Range Reference Atmosphere. Part II will extend thermodynamic quantities for seasonal periods up to 50 km altitude and for summer and winter conditions to 90 km altitude. Part III will contain information on the variability of the principal thermodynamic quantities and wind from surface to 90 km altitude.

The chairman and alternate chairman wish to extend their gratitude to all participants who have contributed in the many technical ways to the establishment of the IRIG Range Reference Atmospheres. Special thanks are extended to the United States Committee on Extension to the Standard Atmosphere (COESA) for the free exchange of scientific information which has been particularly beneficial to the efforts of the IRIG Range Reference Atmosphere Committee.

William N. Vaughan  
Chairman, IRIG Range Reference  
Atmosphere Committee

Orvel E. Smith  
Alternate Chairman, IRIG Range Reference  
Atmosphere Committee

## SECTION I THERMODYNAMIC QUANTITIES

### I. 0 INTRODUCTION

Within Section I the basic data and procedure used in deriving the thermodynamic quantities and the resulting tabulations for the first 30 km altitude will be discussed. Section II will describe the basic wind data computational procedures and the resulting tabulations.

The procedure most often used in establishing a model atmosphere has been to assume a simple temperature-altitude relationship and then derive all desired quantities in terms of this relationship. Water in the gaseous stage (water vapor) is usually neglected as a constituent of the air. Since one major purpose of the IRIG Range Reference Atmospheres is to provide an empirical model of atmospheric parameters most often needed for the missile test ranges, moisture and wind quantities must be included.

Simple empirical equations to express the physical relations for saturation vapor pressure, virtual temperature, and geopotential have been used rather than the more exact equations. This has been done to facilitate a more widespread use of high-speed electronic computers for particular applications of these reference atmospheres to missile and aerospace problems.

### I. 1 BASIC THERMODYNAMIC DATA

The basic data for the first 30 km altitude were from radiosonde and rawinsonde measurements. Frequency distributions were prepared from the basic radiosonde observations between 0 and 30 km by the U. S. Weather Bureau, National Weather Records Center, or Air Weather Service, Data Control Division. The following frequency distributions were obtained for Standard Pressure Levels (see Table A):

- (a) Frequency distributions of geopotential heights for the standard pressure levels with a class interval of 20 m.
- (b) Two-way frequency distributions of temperature and relative humidity with class intervals of  $2^{\circ}\text{C}$  and 10% respectively.
- (c) Frequency distributions of density with a class interval of  $0.001 \text{ kgm}^{-3}$ .

Both annual and monthly frequency distributions were obtained.

Data from Fairbanks, Alaska, were used to form the basic data in the development of the Fort Greely Range Reference Atmosphere. Data from Fort Greely, Alaska, and Northway, Alaska, were used for comparison purposes (see Appendix).

TABLE A  
STANDARD PRESSURE LEVELS (mb)

1000	600	200	40
950	550	175	30
900	500	150	25*
850	450	125	20
800	400	100	15*
750	350	80	10
700	300	60	
650	250	50	

\*Not used for early periods of record.

## I. 2 COMPUTATIONAL PROCEDURES

I. 2.1 COMPUTATION OF MEDIAN VALUES. The first step in the computational procedures is that of obtaining the monthly and annual median values for geopotential height, temperature, and density; at standard pressure levels. The median relative humidity values were determined from the cumulative frequency corresponding to the class interval in which the median temperature occurred. The median relative humidity was so selected in order to obtain a value more closely associated with the median temperature than if the median relative humidity were selected from the total population. In determining the relative humidity values it was assumed that the relative humidity values tabulated as unknown in the frequency distributions were due to values lower than 20 percent relative humidity. If one-half or more of the total number of relative humidity observations for a specific level were listed as unknown, no relative humidity values are given in the reference atmosphere for that level.

It should be noted that the resulting statistical values for relative humidity will be, in general, higher than the arithmetic average. This is due to the skewness of the frequency distributions and because only a part of the total sample has been used in determining the median relative humidity.

This task was performed by the committee members responsible for the basic data for their respective missile test ranges.

I. 2.2 DERIVED MEDIAN GEOPOTENTIAL HEIGHTS. The second step is the derivation of the first approximation for the median geopotential height of the standard pressure levels. This derivation uses the median values of temperature, and median relative humidity associated with the median temperature, and the median geopotential height at standard pressure levels in the following expressions.

I. 2.3 SATURATION VAPOR PRESSURE. The empirical equation adopted for the determination of saturation vapor pressure with respect to water is as follows:

$$\begin{aligned}\ln e_s &= 24.858048(1 - T_t/T) - 5.028 \ln(T/T_t) \\ &+ 3.464807[\exp - 9.21032] \cdot [1 - \exp - 19.104276(T/T_t - 1)] \\ &+ 0.987185 \exp - 6.90774[\exp \{10.98227(1 - T_t/T)\} - 1] \\ &+ 1.81015\end{aligned}$$

where  $T_t = 273.16^{\circ}\text{K}$  and  $T = 273.15 + t^{\circ}\text{C}$ .

$$e_s = \exp \ln e_s, \text{ expressed in mb} \quad \text{Eq. (1)<sup>#</sup>}$$

I. 2.4 ACTUAL VAPOR PRESSURE. The median vapor pressure was obtained by:

$$e_a = e_s U \quad \text{Eq. (2)}$$

where U is relative humidity.

I. 2.5 VIRTUAL TEMPERATURE. The following empirical equation for virtual temperature was used:

$$T^* = T \left[ \frac{P + 0.00123 e_a}{P - 0.37812 e_a} \right] \quad \text{Eq. (3)}$$

I. 2.6 DERIVED GEOPOTENTIAL HEIGHTS. Using the foregoing definitions and equations the first approximation to the median geopotential height of the standard pressure levels is defined by:

$$H_{\text{derived}} = H_1 + \sum_{n=1}^N (-) A T_m^* \ln \frac{P_n}{P_{n-1}} \quad \text{Eq. (4)}$$

where  $H_1$  is the median height of the first standard pressure level above the station elevation.

$$A = \frac{R^*}{M} \div \text{unit geopotential}$$

---

#Footnote: This equation was formulated by J. Goff in August 1960, and communicated to the IRIG Range Reference Atmosphere Committee by L. P. Harrison in June 1962. Goff's expression used common logarithms. Appropriate changes have been made to convert to the Napierian System to facilitate computations.

Using the COESA standard values for pressure, temperature, and density from Table C, and adopting  $98066.5 \text{ cm}^2 \text{ sec}^{-2}$  as the unit geopotential the computation yields:

$$\frac{R^*}{M} = 2.87052874 \times 10^6 \text{ cm}^2/\text{sec}^2 \text{ }^\circ\text{K}$$

and

$$A = 2.87052874 \times 10^6 + 98066.5 = 29.271246 \text{ gpm } ({}^\circ\text{K})^{-1}$$

$T_m^*$  is  $\frac{T_n + T_{n-1}}{2}$ , the mean virtual temperature between two consecutive pressure levels,  $n$  and  $n - 1$ , and  $P_{n-1} > P_n$ .

The molecular weight of air ( $M$ ) is considered constant from sea level to 90 km altitude. The numerical value for  $M$  is derived from the primary physical constants  $P_0$ ,  $\rho_0$ ,  $t_0$ ,  $R^*$ , and  $N$  as given in Table C. Avogadro's number,  $N$ , is based on the scale  $C^{12} = 12.0000$ . For computation purposes  $M$  is taken to be 28.9644. A more complete discussion of molecular weight and, in particular, variations with respect to altitudes above 90 km is given in reference 2.

**I. 2.7 ADJUSTMENTS TO THE DERIVED GEOPOTENTIAL HEIGHTS.** The derived geopotential heights of the standard pressure levels are not necessarily the same as the median geopotential heights. The following procedure has been found experimentally effective in reducing the differences between the derived and median heights (ref. 1).

Let the differences between the derived and median geopotential heights be denoted as  $H'$ :

$$H' = H_{\text{derived}} - H_{\text{median}}$$

The differences ( $H'$ ) versus the logarithm of pressure approximate a straight line. A linear regression equation is fitted to  $H'$ , which is:

$$H' = a + b (\ln P - \ln P_1) \quad \text{Eq. (5)}$$

where the constants  $a$  and  $b$  are determined by the method of least squares. Now by differentiating equation (5) yields:

$$dH' = + b \frac{dP}{P} \quad \text{Eq. (6)}$$

Noting that the hydrostatic equation in differential form is

$$dH = - AT^* \frac{dP}{P},$$

equation 6 is set identical to  $dH$ , i. e. ,

$dH' \equiv dH$  as a first and sufficient approximation.

Solving for  $T^*$  yields:

$$T^* = \frac{b}{A} = \delta T^*$$

and this small increment of virtual temperature is set equal to  $\delta T^*$  in order to avoid confusion in notations.

The value for  $\delta T^*$  is the adjustment that is added algebraically to the derived virtual temperature in equation 4 to reduce the magnitude of  $H'$ . The constant,  $a$ , is subtracted from the median geopotential height of the first standard pressure level.

The monthly and annual values for the constants  $a$  and  $\delta T^*$  for Fairbanks are tabulated in Table B.

TABLE B  
REGRESSION CONSTANTS FOR FAIRBANKS

Month	<u>a</u>	$\delta T^*$	Month	<u>a</u>	$\delta T^*$
January	3.965	0.071	July	3.527	0.019
February	4.559	0.055	August	-0.125	-0.022
March	4.175	0.106	September	2.969	0.066
April	0.465	0.009	October	4.255	-0.030
May	-1.013	-0.053	November	1.461	-0.012
June	-0.379	-0.073	December	1.090	0.023
			Annual	4.682	0.042

In order to obtain smooth interpolations for the thermodynamic quantities versus altitude, the median temperature and relative humidity at the standard pressure levels are interpolated by a fourth degree polynomial for 10 mb intervals. These interpolated values are then substituted in the equation:

$$H_{RRA} = H_1 - a + \sum_{n=1}^N (-) A (T_m^* + \delta T^*) \ln \frac{P_n}{P_{n-1}} \quad \text{Eq. (7)}$$

The terms are as defined previously and  $H_{RRA}$  refers to adjusted pressure-heights for the Range Reference Atmosphere (RRA).

### I.3 GEOPOTENTIAL TO GEOMETRIC ALTITUDE CONVERSION

A rigorous treatment of the relationships between geopotential, geopotential height and geometric altitude can be found in reference 2. For the altitude range of concern for the IRIG Range Reference Atmospheres, the simple relations as given in reference 3 are used. No significant loss

in accuracy is recognized in using the following equation. Let geopotential ( $m^2 sec^{-2}$ ) be defined by:

$$\Phi = \int_0^Z g dZ \quad \text{Eq. (8)}$$

where  $g$  is acceleration of gravity, and  $Z$  is geometric height above mean sea level.

The unit geopotential for the IRIG Range Reference Atmospheres is taken to be  $98066.5 \text{ cm}^2 \text{ sec}^{-2}$ . Thus, geopotential height in terms of geopotential meter (s) is given by:

$$H = \frac{1}{9.80665} \int_0^Z g dZ$$

Continuing with the procedure given in reference 3, the equation relating geopotential height to geometric altitude is as follows:

$$Z = \frac{r^*}{\frac{r'}{\Phi} - 1} \quad \text{Eq. (9)}$$

where  $r^*$  and  $r'$  are parameters which are a function of latitude.

$$r^* = - \frac{2g\phi}{\left(\frac{\partial g}{\partial Z}\right)_{Z=0}}$$

and

$$-\left(\frac{\partial g}{\partial Z}\right)_{Z=0} = 3.085462 \times 10^{-6} + 2.27 \times 10^{-9} \cos 2\phi - 2 \times 10^{-12} \cos 4\phi$$

$r^*$  has the units meter.

$r'$  is derived from  $r^*$  by the relation:

$$r' = \frac{g_\phi r^*}{9.80665}$$

$r'$  has the units geopotential meter.

I. 3.1 INTERPOLATIONS FOR GEOMETRIC ALTITUDES. The geopotential heights as obtained from equation (7) are converted to geometric altitude by equation (9). Then the temperature, pressure, and relative humidity values are interpolated with respect to geometric altitude at 250 m intervals.

I. 3.2 EXTRAPOLATIONS TO MEAN SEA LEVEL. Pressure and temperature are linearly extrapolated from the height of the first standard

pressure level to mean sea level. Relative humidity is held constant from the first standard pressure level to mean sea level in order to avoid physically unreasonable values. All other thermodynamic quantities are derived from these extrapolated values. It is recognized that extrapolated quantities below the station elevation are fictitious values, but are included for reason of continuity and to hold the mean sea level as a common height reference for all range reference atmospheres. The extrapolated data are easily recognized from Table I ( ) because the height of the first standard pressure level will not correspond to a geometric altitude increment of 250 m. The first standard pressure level for this reference atmosphere is taken to be 950 mb.

#### I.4 DERIVED THERMODYNAMIC QUANTITIES FOR TABLE I ( )

From the interpolated and extrapolated values of temperature, pressure, and relative humidity versus geometric altitude all other quantities as given in Table I ( ) are derived. The following summary statements are given to explain the control of the final computations for Table I ( ).

(1) Geopotential height is derived from geometric altitude using equation (9). Due to round-off procedures the geopotential height of the first standard pressure level will appear on some tables as a slightly higher value (always less than 1 unit) than the corresponding geometric altitude.

(2) Pressure in the units, kilogram force per square meter ( $\text{kg f m}^{-2}$ ) is obtained by converting the pressure in mb to newton ( $1 \text{ mb} \times 100 = 1 \text{ newton m}^{-2}$ ) and dividing by standard gravity,  $9.80665 \text{ m sec}^{-2}$ .

(3) Virtual temperature is derived from temperature, pressure, and relative humidity by equation (3).

(4) The analytical expression for density is:

$$\rho = \frac{M}{R^*} \frac{P}{T^*}$$

For density in the units,  $\text{g m}^{-3}$ , using the pressure in mb virtual temperature in  $^{\circ}\text{K}$ , the computational equation is:

$$\rho = 0.34836787 \times 10^3 \frac{P}{T^*}$$

The derived density values were compared with the median values as a control check. It is concluded from reference 1 that the differences in derived density and the median density values are less than 1%.

(5) The analytical expression for the speed of sound is:

$$C_s = \left( \gamma \frac{R^*}{M} T^* \right)^{\frac{1}{2}}$$

For computational purposes the speed of sound is given by:

$$C_s = 20.046707 (T^*)^{\frac{1}{2}}$$

The computational procedure used in deriving Table I ( ) yields numerical values consistent with the defining physical equations. The tabular values for virtual temperature and pressure as a function of altitude are closely approximated by the hydrostatic equation. There is good agreement between the tabular values and the original statistical values.

### I. 5 ADOPTED PRIMARY CONSTANTS

The IRIG Range Reference Atmosphere Committee has agreed to adopt the primary physical constants established by COESA. The numerical values are given in Table C. It is recommended that these values be used as a basis for comparison of the Range Reference Atmosphere with the U. S. Standard Atmosphere 1962.

TABLE C  
PRIMARY PHYSICAL CONSTANTS

Symbol	Metric units (mks)	English units (ft-lb-sec)
$P_0$	$1.013250 \times 10^3$ newtons $m^{-2}$	$2116.22 \text{ lbf ft}^{-2}$
$\rho_0$	$1.2250 \text{ kg m}^{-3}$	$0.076474 \text{ lb ft}^{-3}$
$t_0$	$15^\circ \text{ C}$	$59.0^\circ \text{ F}$
$g_0$	$9.80665 \text{ m sec}^{-2}$	$32.1741 \text{ ft sec}^{-2}$
$S$	$110.4^\circ \text{ K}$	$198.72^\circ \text{ R}$
$T_1$	$273.15^\circ \text{ K}$	$491.67^\circ \text{ R}$
$\beta$	$1.458 \times 10^{-6} \text{ kg sec}^{-1} \text{m}^{-1} (\text{°K})^{-1/2}$	$7.3025 \times 10^{-7} \text{ lb ft}^{-1} \text{sec}^{-1} (\text{°R})^{-1/2}$
$\gamma$	1.40 (dimensionless)	1.40 (dimensionless)
$\sigma$	$3.65 \times 10^{-10} \text{ m}$	$1.1975 \times 10^{-9} \text{ ft}$
$N$	$6.02257 \times 10^{26} (\text{kg-mol})^{-1}$	$2.73179 \times 10^{26} (\text{lb-mol})^{-1}$
$R^*$	$8.31432 \text{ joules } (\text{°K})^{-1} \text{ mol}^{-1}$	$1545.31 \text{ ft lb } (\text{lb-mol})^{-1} (\text{°R})^{-1}$

Subscript 0 indicates standard sea level values.

The mean molecular weight of air (M) is considered constant from sea level to 90 km altitude and is taken to be 28.9644 (dimensionless).

## SECTION II WIND QUANTITIES

### II. 0 INTRODUCTION

Probably no other single atmospheric parameter receives as much attention with regard to missile and aerospace vehicle operations at missile test ranges as does wind. Wind is the most difficult of all atmospheric parameters to summarize in a statistical form to satisfy the many diverse applications of wind data for missile and space vehicle programs. The IRIG Range Reference Atmosphere Committee has attempted to present the wind quantities that have the greatest common use. The wind statistics presented in this section are monthly and annual values at selected percentiles for scalar wind, zonal and regional wind components. These tabulations will not satisfy all needs for information on wind quantities, but they should prove helpful as a common reference in comparing wind statistics from the several missile test ranges.

### II. 1 BASIC WIND DATA

The rawinsonde, AN/GMD ( ) Upper Air Sounding System, provides the principal wind measurements from 0 to 30 km altitude. These wind measurements are stored at the U. S. Weather Bureau, National Weather Records Center or the Air Weather Service, Data Control Division. The basic wind data correspond to Weather Bureau Card Deck 532 previous to 1956 and Card Deck 535 since 1956. In addition to these card decks NASA George C. Marshall Space Flight Center (Aero-Astrodynamic Laboratory) has sponsored a program on a cross service order to the U. S. Weather Bureau to establish Card Deck 600. Wind data in the form of Card Deck 535 were used for Fort Greely Missile Range, Alaska. The period of record for Card Deck 535 as furnished to the IRIG Range Reference Atmosphere Committee for Fairbanks, Alaska, is from January 1956 to January 1961 (see Appendix). The wind data in the form of these card decks were made available to the IRIG Range Reference Atmosphere Committee through the sponsorship of the individual committee members and their agencies who were responsible for this task.

### II. 2 COMPUTATIONAL PROCEDURES

II. 2. 1 DEFINITION OF WIND QUANTITIES. The following definitions for wind quantities are used.

(1) Scalar Wind - wind speed without regard to direction.

(2) Zonal Wind - the wind component in the west-east or east-west direction, positive for wind components from the west, negative for wind components from the east.

(3) Meridional Wind - the wind component in the south-north or north-south direction, positive for wind components from the south, negative for wind components from the north.

II. 2.2 CUMULATIVE PERCENTAGE FREQUENCIES. After the wind records had been checked for errors as described in reference 4, the zonal and meridional wind components were computed. Cumulative percentage frequencies were then formed for monthly and annual reference periods at each altitude for the scalar and wind components. From these cumulative percentage frequencies the wind statistics corresponding to eleven percentiles were determined. These percentiles are the principal headings of Table II ( ).

A particular feature of the tabulations for scalar wind (Tables II. 1 through II. 13) is that the maximum and minimum scalar winds have been listed. The column heading designated as direction gives the direction from which the maximum and minimum wind speed occurred if the extreme wind value occurred only once during the period of record.

## APPENDIX

### BASIC DATA FOR THE FORT GREELY MISSILE RANGE REFERENCE ATMOSPHERE

The purpose of this appendix is to discuss the basic data used in the development of the Fort Greely Range Reference Atmosphere.

Any representation of a reference atmosphere must be based on a sufficient number of valid observations so that large fluctuations which often appear in meteorological data do not overly influence measures of central tendency.

The basic data for Fort Greely, Alaska, as furnished to the IRIG Range Reference Atmosphere Committee, do not satisfy this criterion. The annual median values of thermodynamic parameters are based on 1150 observations at the 950 mb level and on 83 observations at the 10 mb level. Wind observations were taken in the years of 1957 and 1958, but the number of observations is very limited. In fact, there were no observations during the months of February, March, April, May, and November.

Basic data for Fairbanks, Alaska, as furnished to the IRIG Range Reference Atmosphere Committee, contain a much larger number of observations. The annual median values of thermodynamic parameters are based on 8868 observations at the 950 mb level and on 234 observations at the 10 mb level. Wind observations were taken over a period of twelve years, with the total number of observations for each month exceeding 500.

A slight difference (less than 1%) is noted when the median values of various atmospheric parameters from Fort Greely are rigorously compared to the median values of respective parameters from Fairbanks. This difference in basic data, however, does not affect the reference atmosphere to a great extent. Due to the scarcity of data from Fort Greely, the best representation of the Fort Greely Missile Range Reference Atmosphere must be based on the basic data from Fairbanks, Alaska.

## REFERENCES

1. SMITH, O. E. : A Reference Atmosphere for Patrick AFB, Florida (Annual). NASA Technical Note D-595, March 1961.
2. U. S. Standard Atmosphere, 1962. Prepared under sponsorship of National Aeronautics and Space Administration, United States Air Force, United States Weather Bureau, available through U. S. Government Printing Office, Washington 25, D. C., December 1962.
3. LIST, R., Editor: Smithsonian Meteorological Tables. Sixth Revised Edition, Smithsonian Institution, 1951.
4. ESSENWANGER, O. M., BRADFORD, R. W., and VAUGHAN, W. W.: On Verification of Upper Air Winds by Vertical Shears and Extreme Winds. Monthly Weather Review, June 1961.
5. Atlantic Missile Range Reference Atmosphere for Cape Kennedy, Florida, (Part I). Prepared by Range Reference Atmosphere Committee, Meteorological Working Group of the Inter-Range Instrumentation Group, IRIG Document 104-63, April 16, 1963.

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### Previous Publications of the IRIG Range Reference Atmospheres

- (1) Atlantic Missile Range Reference Atmosphere for Cape Kennedy, Florida, Document 104-63, April 16, 1963.
- (2) White Sands Missile Range Reference Atmosphere for White Sands Missile Range, New Mexico, Document 104-63, June 28, 1964.
- (3) Fort Churchill Missile Range Reference Atmosphere for Fort Churchill, Manitoba, Canada, Document 104-63, August 7, 1964.
- (4) Pacific Missile Range Reference Atmosphere for Eniwetok, Marshall Islands, Document 104-63, September 1, 1964.

## NOTES ON TABULAR VALUES FOR PRESSURE AND DENSITY

The two digit number preceded by a plus sign as the last two entries for these columns indicates the power of 10 by which the principal values must be multiplied, considering that the decimal point precedes the first digit of the principal value.

For example, a tabular value indicated as 102068+04 is 1020.68.

## IRIG - RANGE REFERENCE ATMOSPHERE, JANUARY

## TABLE I.I

STATION	ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES			
		LATITUDE	LONGITUDE			UNITS: SEE COLUMN HEADINGS			
FAIRBANKS, ALASKA	134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE			
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W					
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL) meters	PRESSURE kgfm <sup>-2</sup>	PRESSURE mb	TEMPERATURE degrees K	VIRTUAL TEMPERATURE degrees K	DENSITY g cm <sup>-3</sup>	SPEED OF SOUND m sec <sup>-1</sup>	RELATIVE HUMIDITY percent	VAPOR PRESSURE mb
0	0.0	102245+05	101249+04	255.47	255.56	13602+04	320.469	58	0.886
250	250.6	10056+05	981213+C3	256.84	256.94	13304+04	321.336	58	0.995
500	500.6	96873+C4	950000+03	258.21	258.32	12811+04	322.200	58	1.114
750	751.6	937372+04	919248+03	259.64	259.78	12327+C4	323.108	63	1.378
1000	1002.2	907114+04	889575+03	260.64	260.61	11802+04	323.749	66	1.549
1250	1252.6	877651+04	860721+03	261.30	261.49	11467+04	324.169	66	1.443
1500	1503.1	849481+04	833C57+03	261.25	261.44	11100+04	324.139	64	1.588
1750	1753.6	822171+04	8C6274+C3	260.67	260.84	10768+04	323.768	61	1.448
2000	2004.0	7955C7+04	780126+03	259.73	259.69	10457+04	323.176	58	1.265
2250	2254.4	769763+04	754880+03	258.51	258.65	10167+04	322.405	57	1.126
2500	2504.8	7446C4+04	730207+03	257.23	257.37	98838+03	321.606	60	1.069
2750	2755.2	720295+04	706368+03	255.86	255.99	96127+03	320.741	61	0.974
3000	3005.5	696534+04	683067+03	254.42	254.54	93487+03	319.829	57	0.805
3250	3255.9	673415+04	660394+03	252.95	253.05	90915+03	318.894	53	0.361
3500	3506.2	651096+04	638508+03	251.48	251.57	88419+03	317.960	55	0.607
3750	3756.5	629253+04	617126+03	249.98	250.06	85973+03	317.066	58	0.558
4000	4006.7	608075+04	596318+03	248.43	248.51	83593+03	316.021	57	0.479
4250	4257.0	587450+04	576092+03	246.83	246.90	81286+03	314.992	54	0.389
4500	4507.2	5674C6+04	556435+03	245.16	245.21	79052+03	313.916	51	0.318
4750	4757.5	547926+04	537332+C3	243.39	243.44	76895+03	312.777	54	0.284
5000	5007.6	528955+04	518767+03	241.62	241.66	74782+03	311.638	53	0.237
5250	5257.8	5104C3+04	500534+03	239.89	239.92	72677+03	310.513	49	0.183
5500	5508.0	492522+04	483000+03	238.30	238.32	70604+03	309.472	29	0.095
5750	5758.1	475179+04	465991+03	236.69	236.70	68583+03	308.420	12	0.035
6000	6008.2	458359+04	449457+03	235.03	235.03	66625+03	307.331	4	0.011
6250	6258.3	441851+04	4333C8+03	233.34	233.34	64692+03	306.221		
6500	6508.4	425979+04	417743+03	231.64	231.64	62826+03	305.103		
6750	6758.5	410424+04	402489+03	229.95	229.95	60975+03	303.993		
7000	7008.5	395497+04	387850+03	228.37	228.37	59166+03	302.941		
7250	7258.5	38C879+04	373514+03	226.81	226.81	57371+03	301.905		
7500	7508.5	366871+04	359777+03	225.32	225.32	55626+03	300.914		
7750	7758.5	353165+04	346336+C3	223.87	223.87	53895+03	299.942		
8000	8008.5	339829+04	333268+03	222.49	222.49	52182+03	299.018		
8250	8258.4	326943+04	320621+03	221.22	221.22	50489+03	298.167		
8500	8508.3	3146E0+04	308595+C3	220.18	220.18	48825+03	297.465		
8750	8758.2	302714+04	296861+03	219.15	219.15	47190+03	296.767		
9000	9008.1	291112+04	285483+03	218.29	218.29	45561+03	296.180		
9250	9258.0	279911+04	274999+C3	217.69	217.69	43928+03	295.774		
9500	9507.8	269128+04	263924+03	217.40	217.40	42292+03	295.577		
9750	9757.6	258765+04	253762+03	217.41	217.41	40662+03	295.583		
10000	10007.4	248827+04	244016+C3	217.86	217.86	39019+03	295.894		
10250	10257.2	23931C+04	234683+03	218.46	218.46	37423+03	296.300		
10500	10507.0	23C2C1+04	225750+C3	219.07	219.07	35899+03	296.713		
10750	10756.7	221464+04	217202+C3	219.63	219.63	34451+03	297.092		
11000	11006.5	213144+04	2C9023+C3	220.11	220.11	33082+03	297.416		
11250	11256.2	2048C4+04	2C8045+C3	220.59	220.59	31718+03	297.739		
11500	11505.9	197080+04	193270+03	220.89	220.89	30481+03	297.942		
11750	11755.5	189572+04	185907+03	221.16	221.16	29284+03	298.124		
12000	12005.2	182470+04	178942+C3	221.38	221.38	28152+03	298.274		
12250	12254.8	175539+04	172165+03	221.60	221.60	27066+03	298.418		
12500	12504.4	168893+04	165627+C3	221.79	221.79	26016+03	298.545		
12750	12754.0	1626C6+04	159462+03	221.92	221.92	25032+03	298.637		
13000	13003.6	156491+04	153466+03	222.04	222.04	24078+03	298.713		
13250	13253.1	15C5E5+04	147674+03	222.11	222.11	23161+03	298.766		
13500	13502.6	1449C0+04	142099+03	222.17	222.17	22282+C3	298.800		
13750	13752.2	139436+04	136740+03	222.19	222.19	21439+C3	298.819		
14000	14001.6	1341E6+04	131591+C3	222.20	222.20	20631+03	298.826		
14250	14251.1	129129+04	126642+C3	222.20	222.20	19855+03	298.824		
14500	14500.6	124289+04	121886+03	222.17	222.17	19112+03	298.804		
14750	14750.0	119628+04	117315+C3	222.14	222.14	18398+03	298.785		
15000	14999.4	115150+04	112923+03	222.12	222.12	17710+03	298.773		
15250	15248.8	110949+04	1C8706+03	222.12	222.12	17049+03	298.770		
15500	15498.2	106723+04	1C4660+03	222.13	222.13	16414+03	298.776		
15750	15747.5	102597+04	1C0613+03	222.14	222.14	15779+03	298.782		

## (CONTINUED) IRIG-RANGE REFERENCE ATMOSPHERE, JANUARY TABLE I.I

STATION	ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES			
		LATITUDE	LONGITUDE			UNITS: SEE COLUMN HEADINGS			
FAIRBANKS, ALASKA	134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE			
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W		UNITS: SEE COLUMN HEADINGS			
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
16000	15996.5	987550+03	968456+02	222.21	222.21	15183+03	298.830		
16250	16246.2	950838+03	932453+02	222.26	222.26	14615+02	298.867		
16500	16495.5	915719+03	898014+02	222.29	222.29	14073+03	298.887		
16750	16744.8	880600+03	863574+02	222.32	222.32	13532+03	298.908		
17000	16994.0	847818+03	831426+02	222.32	222.32	13028+03	298.903		
17250	17243.3	816637+03	800848+02	222.28	222.28	12551+03	298.876		
17500	17492.5	785457+03	779270+02	222.24	222.24	12074+03	298.849		
17750	17741.7	756376+03	741751+02	222.18	222.18	11630+03	298.812		
18000	17990.8	727295+03	713232+02	222.13	222.13	11184+03	298.775		
18250	18240.0	700466+03	686863+02	222.08	222.08	10775+03	298.740		
18500	18489.1	673517+03	660494+02	222.02	222.02	10364+03	298.705		
18750	18738.3	648707+03	636165+02	221.99	221.99	99833+02	298.683		
19000	18987.4	623858+03	611835+02	221.96	221.96	96029+02	298.660		
19250	19236.4	601026+03	589405+02	221.95	221.95	92511+02	298.656		
19500	19485.5	578153+03	566975+02	221.95	221.95	88993+02	298.653		
19750	19734.6	557104+03	546333+02	221.97	221.97	85744+02	298.668		
20000	19983.6	536055+03	525691+02	221.99	221.99	82496+02	298.684		
20250	20232.6	515064+03	505048+02	222.01	222.01	79248+02	298.699		
20500	20481.6	496274+03	486678+02	222.06	222.06	76349+02	298.732		
20750	20730.5	477541+03	468308+02	222.11	222.11	73450+02	298.766		
21000	20979.5	460459+03	451556+02	222.22	222.22	70780+02	298.838		
21250	21228.4	443376+03	434804+02	222.33	222.33	68130+02	298.910		
21500	21477.3	426254+03	418051+02	222.43	222.43	65473+02	298.981		
21750	21726.2	405211+03	401299+02	222.54	222.54	62820+02	299.053		
22000	21975.1	394559+03	376369+02	222.74	222.74	60522+02	299.189		
22250	22223.9	379967+03	372840+02	222.94	222.94	58228+02	299.324		
22500	22472.7	365375+03	358310+02	223.15	223.15	55936+02	299.460		
22750	22771.5	352551+03	345735+02	223.31	223.31	53934+02	299.571		
23000	22970.3	339728+03	333159+02	223.48	223.48	51934+02	299.683		
23250	23219.1	326904+03	320593+02	223.65	223.65	49936+02	299.795		
23500	23467.8	3140EC+03	308008+02	223.81	223.81	47942+02	299.907		
23750	23716.6	303229+03	297365+02	223.95	223.95	46257+02	299.999		
24000	23965.3	292376+03	286723+02	224.39	224.39	44574+02	300.090		
24250	24214.0	281523+03	276080+02	224.22	224.22	42893+02	300.132		
24500	24462.7	270671+03	265458+02	224.36	224.36	41215+02	300.274		
24750	24711.3	259819+03	254795+02	224.50	224.50	39538+02	300.365		
25000	25959.9	251040+03	246166+02	224.65	224.65	38176+02	300.467		
25250	25208.6	242262+03	237577+02	224.80	224.80	36816+02	300.569		
25500	25457.1	233463+03	228969+02	224.96	224.96	35453+02	300.671		
25750	25705.7	224705+03	220360+02	225.11	225.11	34102+02	300.773		
26000	25954.3	215926+03	211751+02	225.26	225.26	32747+02	300.875		
26250	26202.8	207147+03	203142+02	225.41	225.41	31395+02	300.977		
26500	25451.3	200369+03	196514+02	225.48	225.48	30361+02	301.024		
26750	25699.8	193630+03	189887+02	225.55	225.55	29328+02	301.070		
27000	26948.3	188724+03	183259+02	225.62	225.62	28296+02	301.116		
27250	27196.8	186113+03	176631+02	225.69	225.69	27264+02	301.163		
27500	27445.2	173355+03	170003+02	225.76	225.76	26233+02	301.209		
27750	27693.5	166556+03	163375+02	225.83	225.83	25202+02	301.255		
28000	27942.0	159838+03	156747+02	225.90	225.90	24172+02	301.301		
28250	28190.4	153079+03	150119+02	225.97	225.97	23143+02	301.348		
28500	28438.6	148344+03	145475+02	225.85	225.85	22439+02	301.387		
28750	28687.1	1436C8+03	140932+02	225.73	225.73	21735+02	301.186		
29000	28935.4	138873+03	136188+02	225.61	225.61	21029+02	301.105		
29250	29183.7	134138+03	131544+02	225.48	225.48	20323+02	301.024		
29500	29432.0	1294C2+03	126900+02	225.36	225.36	19616+02	300.943		
29750	29660.3	124667+03	122256+02	225.24	225.24	18969+02	300.862		
30000	29928.5	119931+03	117613+02	225.12	225.12	18200+02	300.781		

## IRIG - RANGE REFERENCE ATMOSPHERE, FEBRUARY TABLE I.2

STATION		ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES		
			LATITUDE	LONGITUDE			UNITS: SEE COLUMN HEADINGS		
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W					
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	gm <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
0	0.0	102978±05	100987±04	254.60	254.67	13814±04	319.915	56	0.809
250	250.6	97935±04	97864±03	256.63	256.73	13280±04	321.293	56	0.960
479	480.3	96873±04	95000±03	258.50	259.52	12797±04	322.392	56	1.121
500	501.1	96605±04	94741±03	259.03	259.14	12736±04	322.711	55	1.132
750	751.4	93487±04	91679±03	259.81	259.94	12297±04	323.203	54	1.198
1000	1002.2	98464±04	88715±03	259.87	260.01	11886±04	323.252	58	1.288
1250	1252.6	87531±04	95845±03	259.61	259.76	11513±04	323.096	62	1.352
1500	1503.1	84661±04	83046±03	259.44	259.60	11145±04	322.995	65	1.385
1750	1753.6	81943±04	80359±03	258.91	259.07	10806±04	322.564	64	1.305
2000	2004.0	79283±04	77759±03	257.76	257.90	10502±04	321.937	60	1.112
2250	2254.4	76632±04	75200±03	256.67	256.79	10202±04	321.243	57	0.967
2500	2504.6	74177±04	72742±03	255.96	256.08	98557±02	320.799	58	0.927
2750	2755.2	71731±04	70344±03	255.02	255.15	96047±03	320.211	59	0.880
3000	3005.5	69354±04	68013±03	253.56	253.68	93020±03	319.289	61	0.796
3250	3255.9	67055±04	65762±03	251.88	251.98	90918±03	318.220	61	0.694
3500	3506.2	64814±04	63561±03	250.23	250.32	884±03	317.168	61	0.595
3750	3756.5	62626±04	61417±03	248.58	248.66	864±03	316.113	60	0.507
4000	4056.7	60503±04	59334±03	246.92	246.98	83690±03	315.049	59	0.428
4250	4257.0	58436±04	57308±03	245.24	245.30	81389±03	313.971	58	0.363
4500	4507.2	56431±04	55341±03	243.54	243.60	79142±03	312.880	59	0.316
4750	4757.5	54480±04	53273±03	241.83	241.88	76749±03	311.775	65	0.296
5000	5007.6	52585±04	51569±03	240.11	240.15	74607±03	310.660	65	0.249
5250	5257.8	50745±04	49754±03	238.40	238.43	72710±03	309.545	52	0.168
5500	5508.0	48955±04	48012±03	236.70	236.72	70658±03	208.432	31	0.025
5750	5759.1	47205±04	46293±03	235.00	235.01	68623±03	307.316	11	0.027
6000	6008.2	45519±04	44638±03	233.30	233.30	66555±03	306.197	3	0.006
6250	6258.3	43864±04	43017±03	231.60	231.60	64706±03	305.080		
6500	6508.4	42276±04	41461±03	229.94	229.94	62815±03	303.986		
6750	6758.5	40742±04	39954±03	228.37	228.37	60950±03	202.942		
7000	7008.5	39234±04	38478±03	226.94	226.94	59093±03	301.926		
7250	7258.5	37777±04	37041±03	225.35	225.36	572±03	300.943		
7500	7508.5	35373±04	35670±03	223.98	223.98	55481±03	300.016		
7750	7758.5	35005±04	34328±03	222.60	222.60	53725±03	299.091		
8000	8008.5	33672±04	33023±03	221.32	221.32	51987±03	298.229		
8250	8252.4	32414±04	31757±03	220.30	220.30	50266±03	297.545		
8500	8508.3	31135±04	30577±03	218.45	218.45	48542±03	296.968		
8750	8758.2	29984±04	29463±03	218.72	218.72	46837±03	296.475		
9000	9018.1	28833±04	28276±03	218.23	218.23	45139±03	296.141		
9250	9258.0	27724±04	27188±03	218.01	218.01	43445±03	295.994		
9500	9507.8	26655±04	26143±03	218.07	218.07	41765±03	298.033		
9750	9757.6	25637±04	25141±03	218.36	218.36	40110±03	296.230		
10000	10007.4	24457±04	24160±03	219.03	219.03	38458±03	296.686		
10250	10257.2	23719±04	23263±03	219.75	219.75	36875±03	297.169		
10500	10507.0	22820±04	22379±03	220.41	220.41	35372±03	297.618		
10750	10756.7	21961±04	21536±03	220.99	220.99	33950±03	298.008		
11000	11006.5	21135±04	20729±03	221.47	221.47	32605±03	298.331		
11250	11255.2	20334±04	19943±03	221.86	221.86	31315±03	298.598		
11500	11505.6	19460±04	19182±03	221.19	221.19	30777±03	298.825		
11750	11755.5	18632±04	18462±03	222.44	222.44	28920±03	298.984		
12000	12005.2	18119±04	17769±03	222.87	222.87	27800±03	299.140		
12250	12254.8	17432±04	17096±03	222.90	222.90	26720±03	299.264		
12500	1254.4	16787±04	16463±03	223.09	223.09	25708±03	299.419		
12750	12754.5	16156±04	15846±03	223.24	223.24	24728±03	299.524		
13000	13003.6	15551±04	15250±03	223.36	223.36	23786±03	299.603		
13250	13253.1	14967±04	14677±03	223.42	223.42	22886±03	299.644		
13500	13502.6	14405±04	14126±03	223.45	223.45	22024±03	299.661		
13750	13752.2	13865±04	13597±03	223.45	223.45	21199±03	299.663		
14000	14011.6	13346±04	13088±03	223.44	223.44	20406±03	299.654		
14250	14251.1	12847±04	12598±03	223.41	223.41	19645±03	299.639		
14500	14500.6	12367±04	12122±03	223.39	223.39	18913±03	299.626		
14750	14750.0	11505±04	11675±03	223.37	223.37	18209±03	299.608		
15000	14999.4	11462±04	11240±03	223.33	223.33	17534±03	299.583		
15250	15248.8	11036±04	10822±03	223.29	223.29	16886±03	299.553		
15500	15498.2	10627±04	10421±03	223.23	223.23	16264±03	299.519		
15750	15747.5	10216±04	10020±03	223.18	223.18	15641±03	299.484		

## (CONTINUED) IRIG - RANGE REFERENCE ATMOSPHERE, FEBRUARY TABLE I.2

STATION		ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES		
			LATITUDE	LONGITUDE			UNITS: SEE COLUMN HEADINGS		
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W					
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
16000	15996.9	983786+03	964765+02	223.12	223.12	15063+03	299.442		
16250	16246.2	947340+03	929023+02	223.06	223.06	14509+03	299.398		
16500	16495.5	912439+03	894797+02	222.99	222.99	13979+03	299.353		
16750	16744.8	877537+03	860570+02	222.92	222.92	134+03	299.307		
17000	16994.0	844958+03	828620+02	222.85	222.85	12953+03	299.261		
17250	17243.3	813938+03	798201+02	222.78	222.78	12482+03	299.211		
17500	17492.5	782919+03	767781+02	222.70	222.70	12010+03	299.160		
17750	17741.7	753988+03	739410+02	222.63	222.63	11570+03	299.115		
18000	17990.8	725057+03	711038+02	222.57	222.57	11129+03	299.070		
18250	18240.0	698307+03	684805+02	222.52	222.52	10721+03	299.036		
18500	18489.1	671557+03	658572+02	222.47	222.47	10313+03	299.002		
18750	18738.3	646868+03	634361+02	222.43	222.43	99353+02	298.979		
19000	18987.4	622179+03	610150+02	222.39	222.39	95576+02	298.955		
19250	19236.4	599409+03	587819+02	222.37	222.37	92088+02	298.938		
19500	19485.5	576638+03	565488+02	222.35	222.35	88600+02	298.922		
19750	19734.6	555669+03	544925+02	222.32	222.32	85387+02	298.906		
20000	19983.6	5347C1+03	524362+02	222.30	222.30	82174+02	298.890		
20250	20232.6	513732+03	503799+02	222.27	222.27	78960+02	298.874		
20500	20481.6	495062+03	485490+02	222.25	222.25	76100+02	298.854		
20750	20730.5	476391+03	467180+02	222.22	222.22	73240+02	298.835		
21000	20979.5	459333+03	450451+02	222.18	222.18	70629+02	298.810		
21250	21228.4	442274+03	433723+02	222.14	222.14	68017+02	298.786		
21500	21477.3	425215+03	416994+02	222.11	222.11	65404+02	298.761		
21750	21726.2	408157+03	402655+02	222.07	222.07	62791+02	298.737		
22000	21975.1	393530+03	385921+02	222.05	222.05	60546+02	298.722		
22250	22223.9	378903+03	371577+02	222.03	222.03	58302+02	298.707		
22500	22472.7	364276+03	357233+02	222.01	222.01	56056+02	298.693		
22750	22721.5	351389+03	344595+02	221.93	221.93	54092+02	298.642		
23000	22970.3	3385C2+03	331957+02	221.85	221.85	52126+02	298.590		
23250	23219.1	325615+03	319320+02	221.78	221.78	50159+02	298.539		
23500	23467.8	312728+03	306682+02	221.70	221.70	48190+02	298.488		
23750	23716.6	301789+03	295954+02	221.63	221.63	46518+02	298.443		
24000	23965.3	290849+03	285225+02	221.57	221.57	44846+02	298.398		
24250	24214.0	2799C9+03	274497+02	221.50	221.50	43172+C2	298.354		
24500	24462.7	268969+03	263769+02	221.44	221.44	41497+02	298.309		
24750	24711.3	258030+03	253041+02	221.37	221.37	39821+02	298.264		
25000	24959.9	249172+03	244354+02	221.43	221.43	38443+02	298.305		
25250	25208.6	240314+03	235668+C2	221.49	221.49	37067+02	298.346		
25500	25457.1	231457+03	226981+02	221.55	221.55	35691+02	298.387		
25750	25705.7	222599+03	218295+02	221.61	221.61	34315+02	298.428		
26000	25954.3	213741+03	209609+02	221.67	221.67	32941+02	298.469		
26250	26202.8	204884+03	200922+02	221.73	221.73	31567+02	298.510		
26500	26451.3	198071+03	194241+02	221.72	221.72	30519+02	298.502		
26750	26699.8	191258+03	187560+02	221.71	221.71	29471+02	298.494		
27000	26948.3	184445+03	180879+02	221.70	221.70	28423+02	298.486		
27250	27196.8	177632+03	174198+02	221.69	221.69	27374+02	298.478		
27500	27445.2	170820+03	167517+02	221.67	221.67	26326+02	298.470		
27750	27693.6	164067+03	160836+02	221.66	221.66	25277+02	298.462		
28000	27942.4	157154+03	154155+02	221.65	221.65	24228+02	298.454		
28250	28190.4	152238+03	149295+02	221.36	221.36	23495+02	298.421		
28500	28438.8	147283+03	144435+02	221.08	221.08	22760+02	298.068		
28750	28687.1	14237+03	139576+C2	220.79	220.79	22022+02	297.875		
29000	28935.4	137372+03	134716+02	220.51	220.51	21283+02	297.682		
29250	29183.7	132417+03	129856+02	220.22	220.22	20542+02	297.489		
29500	29432.0	127481+03	124997+02	219.93	219.93	19799+02	297.295		
29750	29680.3	1225C6+03	12C137+02	219.65	219.65	19054+02	297.102		
30000	29328.5	117550+03	115277+02	219.36	219.36	18307+02	296.908		

## IRIG - RANGE REFERENCE ATMOSPHERE, MARCH

## TABLE I.3

STATION	ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES			
		LATITUDE	LONGITUDE			UNITS: SEE COLUMN HEADINGS			
FAIRBANKS, ALASKA	134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE			
LAUNCH SITE-FORT GREELY									
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL) meters	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kg/m <sup>2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
0	0.0	102788+05	100801+04	265.87	266.07	13198+04	326.994	55	1.948
250	250.6	996864+04	977590+03	265.74	265.94	12805+04	326.915	55	1.928
477	477.8	968730+04	950000+03	265.62	265.82	12450+04	326.843	55	1.910
500	501.1	965847+04	947172+03	265.58	265.79	12414+04	326.826	57	1.978
750	751.6	935345+04	917260+03	265.20	265.42	12039+04	326.595	60	2.038
1000	1002.2	905683+04	888172+03	264.49	264.71	11688+04	326.161	62	1.973
1250	1252.6	876882+04	859928+03	263.60	263.81	11355+04	325.604	62	1.860
1500	1503.1	848721+04	832321+03	262.66	262.87	11030+04	325.020	63	1.758
1750	1753.6	821540+04	805655+03	261.33	261.53	10731+04	324.195	66	1.645
2000	2004.0	795093+04	779179+03	259.51	259.70	10459+04	323.057	70	1.508
2250	2254.4	769180+04	754308+03	257.63	257.80	10193+04	321.875	73	1.346
2500	2504.6	744076+04	729689+03	255.89	256.04	99281+03	320.773	73	1.158
2750	2755.2	719520+04	705608+03	254.36	254.49	96589+03	319.801	71	0.993
3000	3005.5	693628+04	682178+03	253.17	253.29	93824+03	319.047	68	0.857
3250	3255.9	672620+04	659597+03	251.94	252.04	91168+03	318.259	65	0.744
3500	3506.2	650111+04	637541+03	250.43	250.53	88653+03	317.300	65	0.650
3750	3756.5	628213+04	616067+03	248.77	248.86	86240+03	316.243	66	0.564
4000	4006.7	606917+04	595183+03	247.09	247.16	83890+03	315.161	64	0.475
4250	4257.0	586217+04	574882+03	245.40	245.47	81588+03	314.080	62	0.393
4500	4507.2	566099+04	555154+03	243.71	243.77	79337+03	312.990	61	0.329
4750	4757.5	546551+04	535984+03	242.00	242.05	77142+03	311.884	64	0.294
5000	5007.6	527563+04	517362+03	240.30	240.34	74990+03	310.782	62	0.242
5250	5257.8	509125+04	499281+03	238.63	238.66	72880+03	309.693	49	0.163
5500	5508.0	491024+04	481530+03	236.98	237.00	70781+03	308.613	31	0.088
5750	5758.1	473621+04	464464+03	235.36	235.36	68746+03	307.549	12	0.030
6000	6008.2	456758+04	447927+03	233.80	233.80	66743+03	306.523	4	0.008
6250	6258.3	440220+04	431709+03	232.24	232.24	64759+03	305.498		
6500	6508.4	424327+04	416133+03	230.56	230.56	62877+03	304.391		
6750	6758.5	408771+04	400867+03	228.79	228.79	61038+03	303.223		
7000	7008.5	3938C8+04	386194+03	226.73	226.73	59339+03	301.853		
7250	7258.5	379137+04	371806+03	224.77	224.77	57625+03	300.550		
7500	7508.5	365058+04	358000+03	223.17	223.17	55884+03	299.475		
7750	7758.5	351267+04	344954+03	221.87	221.87	54090+03	298.603		
8000	8008.5	337924+04	331391+03	220.87	220.87	52269+03	297.926		
8250	8258.4	325238+04	318950+03	220.20	220.20	50459+03	297.478		
8500	8508.3	312875+04	307682+03	219.66	219.66	48660+03	297.114		
8750	8758.2	3009C7+04	295089+03	219.15	219.15	469C9+03	296.765		
9000	9008.1	289368+04	283773+03	218.78	218.78	45185+03	296.518		
9250	9258.0	278269+04	272888+03	218.63	218.63	43482+03	296.416		
9500	9507.8	267667+04	262433+03	218.71	218.71	41801+03	296.468		
9750	9757.6	257375+04	252399+03	218.99	218.99	40151+03	296.659		
10000	10007.4	247568+04	242781+03	219.59	219.59	38516+03	297.062		
10250	10257.2	238175+04	233570+03	220.24	220.24	36945+03	297.504		
10500	10507.0	229182+04	224751+03	220.87	220.87	35449+03	297.927		
10750	10756.7	220573+04	216308+03	221.43	221.43	34032+03	298.303		
11000	11006.5	212392+04	208227+03	221.89	221.89	32691+03	298.618		
11250	11256.2	204052+04	200146+03	222.36	222.36	31356+03	298.932		
11500	11505.9	196449+04	192670+03	222.66	222.66	30145+03	299.131		
11750	11755.5	189050+04	185394+03	222.90	222.90	28975+03	299.295		
12000	12005.2	182021+04	178502+03	223.05	223.05	27879+03	299.397		
12250	12254.8	175179+04	171792+03	223.16	223.16	26818+03	299.466		
12500	12504.4	168575+04	165316+03	223.22	223.22	25801+03	299.506		
12750	12754.0	162338+04	159199+03	223.23	223.23	24844+03	299.519		
13000	13003.6	156268+04	153247+03	223.24	223.24	23914+03	299.525		
13250	13253.1	1504C3+04	147495+03	223.26	223.26	23014+03	299.538		
13500	13502.6	144755+04	141956+03	223.27	223.27	22149+03	299.545		
13750	13752.2	139325+04	136631+03	223.26	223.26	21319+03	299.537		
14000	14001.6	1341C5+04	131512+03	223.23	223.23	20523+03	299.516		
14250	14251.1	129085+04	126589+03	223.18	223.18	19760+03	299.480		
14500	14500.6	124258+04	121856+03	223.06	223.06	19031+03	299.404		
14750	14750.0	119617+04	117304+03	222.95	222.95	18329+03	299.328		
15000	14999.4	115155+04	112929+03	222.85	222.86	17653+03	299.266		
15250	15248.8	110869+04	108725+03	222.80	222.80	17000+03	299.227		
15500	15498.2	106755+04	104691+03	222.77	222.77	16372+03	299.205		
15750	15747.5	102641+04	100656+03	222.74	222.74	15743+03	299.183		

STATION		ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES			
			LATITUDE	LONGITUDE			UNITS: SEE COLUMN HEADINGS			
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE			
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W						
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE	
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb	
16000	15996.9	988080+03	968875+02	222.80	222.80	15151+03	299.225			
16250	16246.2	951453+03	933056+02	222.85	222.85	14586+03	299.262			
16500	16495.5	916415+03	898696+02	222.89	222.89	14047+03	299.284			
16750	16744.8	881377+03	864336+02	222.92	222.92	13507+03	299.307			
17000	16994.0	848659+03	832251+02	222.91	222.91	13006+03	299.304			
17250	17243.3	815941+03	800165+02	222.91	222.91	12505+03	299.301			
17500	17492.5	785766+03	770574+02	222.84	222.84	12046+03	299.255			
17750	17741.7	756995+03	742358+02	222.77	222.77	11609+03	299.206			
18000	17990.8	728223+03	714143+02	222.70	222.70	11171+03	299.157			
18250	18240.0	701420+03	637858+02	222.63	222.63	10764+03	299.110			
18500	18489.1	674616+03	661573+02	222.56	222.56	10356+03	299.062			
18750	18738.3	649835+03	637271+02	222.49	222.49	99780+02	299.021			
19000	18987.4	625054+03	612969+02	222.43	222.43	96002+02	298.980			
19250	19236.4	602192+03	590549+02	222.39	222.39	92510+02	298.948			
19500	19485.5	579329+03	568128+02	222.34	222.34	89017+02	298.916			
19750	19734.6	558277+03	547483+02	222.30	222.30	85794+02	298.894			
20000	19983.6	537225+03	526837+02	222.27	222.27	82571+02	298.872			
20250	20232.6	516172+03	506192+02	222.24	222.24	79347+02	298.850			
20500	20481.6	497414+03	487797+02	222.26	222.26	76455+02	298.867			
20750	20730.5	478656+03	469401+02	222.29	222.29	73564+02	298.884			
21000	20979.5	459589+03	451006+02	222.31	222.31	70673+02	298.900			
21250	21228.4	443306+03	434734+02	222.28	222.28	68134+02	298.876			
21500	21477.3	426714+03	418463+02	222.24	222.24	65595+02	298.851			
21750	21726.2	410122+03	402192+02	222.20	222.20	63055+02	298.827			
22000	21975.1	395431+03	387786+02	222.07	222.07	60832+02	298.739			
22250	22223.9	380741+03	373379+02	221.94	221.94	58607+02	298.650			
22500	22472.7	366051+03	358973+02	221.81	221.81	56379+02	298.562			
22750	22721.5	353123+03	346295+02	221.92	221.92	54362+02	298.632			
23000	22970.3	340195+03	333618+02	222.02	222.02	52347+02	298.703			
23250	23219.1	327268+03	320940+02	222.13	222.13	50334+02	298.774			
23500	23467.8	314340+03	308262+02	222.23	222.23	48323+02	298.845			
23750	23716.6	303429+03	297553+02	222.51	222.51	46585+02	299.034			
24000	23965.3	292499+03	286844+02	222.79	222.79	44852+02	299.222			
24250	24214.0	281578+03	276134+02	223.07	223.07	43123+02	299.411			
24500	24462.7	270658+03	265425+02	223.36	223.36	41398+02	299.600			
24750	24711.3	259737+03	254715+02	223.64	223.64	39678+02	299.788			
25000	24959.9	250926+03	246084+02	223.85	223.85	38296+02	299.934			
25250	25208.6	242135+03	237453+02	224.07	224.07	36917+02	300.080			
25500	25457.1	233333+03	228822+02	224.29	224.29	35540+02	300.227			
25750	25705.7	224532+03	220190+02	224.51	224.51	34167+02	300.373			
26000	25954.3	215730+03	211559+02	224.73	224.73	32795+02	300.519			
26250	26202.8	206929+03	202928+02	224.95	224.95	31427+02	300.664			
26500	26451.3	200175+03	196305+02	225.11	225.11	30378+02	300.777			
26750	26699.8	193421+03	189682+02	225.28	225.28	29331+02	300.890			
27000	26948.3	196508+03	183028+02	225.45	225.45	28286+02	301.003			
27250	27198.8	178914+03	176435+02	225.62	225.62	27242+02	301.116			
27500	27445.2	173160+03	169812+02	225.79	225.79	26200+02	301.228			
27750	27693.6	166406+03	163189+02	225.96	225.96	25159+02	301.341			
28000	27942.0	159652+03	156565+02	226.13	226.13	24129+02	301.454			
28250	28190.4	154793+03	151800+02	226.34	226.34	23364+02	301.596			
28500	28438.8	149934+03	147035+02	226.55	226.55	22609+02	301.738			
28750	2867.1	145076+03	142270+02	226.77	226.77	21856+02	301.880			
29000	28935.4	140217+03	137506+02	226.98	226.98	21104+02	302.022			
29250	29183.7	135358+03	132741+02	227.19	227.19	20354+02	302.164			
29500	29432.0	130499+03	127976+02	227.41	227.41	19605+02	302.305			
29750	29680.3	125640+03	123211+02	227.62	227.62	18857+02	302.447			
30000	29928.5	120781+03	118446+02	227.83	227.83	18111+02	302.589			

## IRIG - RANGE REFERENCE ATMOSPHERE, APRIL

## TABLE I.4

STATION		ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES		
			LATITUDE	LONGITUDE			UNITS: SEE COLUMN HEADINGS		
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W					
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
0	0.0	102685±05	100700±04	274.62	275.01	12756±04	332.441	54	3.734
250	250.6	996582±04	977313±03	273.43	273.79	12435±04	331.706	54	3.426
480	481.1	968730±04	950000±03	272.33	272.67	12137±04	331.028	54	3.163
500	501.1	966314±04	947630±03	272.01	272.36	12121±04	330.837	57	3.206
750	751.6	936481±04	918374±03	270.80	271.14	11800±04	330.095	58	3.023
1000	1002.2	907356±04	889813±03	269.26	269.57	11499±04	329.140	58	2.683
1250	1252.6	8788C3±04	861812±03	267.64	267.92	11206±04	328.129	59	2.392
1500	1503.1	851130±04	834674±03	266.00	266.27	10920±04	327.118	63	2.269
1750	1753.6	824154±04	808259±03	264.35	264.61	10641±04	326.098	68	2.152
2000	2004.0	797811±04	782386±03	262.65	262.90	10367±04	325.044	71	1.971
2250	2254.4	772255±04	757323±03	260.99	261.21	10100±04	323.997	71	1.732
2500	2504.8	747243±04	732795±03	259.39	259.59	98339±03	322.991	70	1.489
2750	2755.2	723039±04	709059±03	257.78	257.96	95758±03	321.970	67	1.246
3000	3005.5	699357±04	685835±03	256.10	256.24	93241±03	320.900	63	1.023
3250	3255.9	676280±04	663204±03	254.39	254.51	90777±03	319.814	60	0.841
3500	3506.2	653826±04	641184±03	252.71	252.82	88351±03	318.748	58	0.712
3750	3756.5	632138±04	619916±03	251.06	251.15	85986±03	317.698	58	0.613
4000	4006.7	610944±04	599131±03	249.40	249.48	83660±03	316.638	57	0.515
4250	4257.0	5903C6±04	578892±03	247.73	247.80	81384±03	315.566	54	0.424
4500	4507.2	570236±04	559211±03	246.04	246.10	79160±03	314.483	52	0.352
4750	4757.5	550731±04	540083±03	244.34	244.39	76987±03	313.389	54	0.309
5000	5007.6	531569±04	521291±03	242.63	242.68	74832±03	312.290	54	0.264
5250	5257.8	513131±04	503210±03	240.93	240.97	72749±03	311.186	48	0.198
5500	5508.0	495235±04	485660±03	239.25	239.27	70710±03	310.091	30	0.108
5750	5758.1	477867±04	468628±03	237.58	237.58	68714±03	306.996	14	0.044
6000	6008.2	460819±04	451909±03	235.90	235.90	66736±03	307.899	1	0.004
6250	6258.3	444428±04	435835±03	234.25	234.25	64817±03	306.817		
6500	6508.4	428362±04	420079±03	232.58	232.58	62921±03	305.725		
6750	6758.5	412932±04	404948±03	230.90	230.90	61096±03	304.618		
7000	7008.5	397812±04	390120±03	229.23	229.23	59288±03	303.514		
7250	7258.5	3833C0±04	375689±03	227.59	227.59	57537±03	302.425		
7500	7508.6	369086±04	361950±03	225.98	225.98	55798±03	301.354		
7750	7758.5	353465±04	348592±03	224.43	224.43	54111±03	300.317		
8000	8008.5	342137±04	335522±03	222.96	222.96	52425±03	299.332		
8250	8258.4	322820±04	322820±03	221.67	221.67	50734±03	298.465		
8500	8508.3	316661±04	310538±03	220.64	220.64	49031±03	297.771		
8750	8758.2	304780±04	298887±03	220.03	220.03	47323±03	297.359		
9000	9008.1	293212±04	287543±03	219.62	219.62	45611±03	297.083		
9250	9258.0	282028±04	276575±03	219.45	219.45	43905±03	296.971		
9500	9507.8	271262±04	266017±03	219.53	219.53	42215±03	297.020		
9750	9757.6	26C925±04	255880±03	219.81	219.81	40554±03	297.210		
10000	10007.4	251015±04	2461±03	220.34	220.34	38918±03	297.573		
10250	10257.2	241525±04	236855±03	220.98	220.98	37340±03	297.999		
10500	10507.0	232442±04	227948±03	221.61	221.61	35833±03	298.426		
10750	10756.7	223750±04	219424±03	222.19	222.19	34402±03	298.820		
11000	11006.5	215058±04	210900±03	222.70	222.78	32979±03	299.213		
11250	11256.2	207014±04	203012±03	223.24	223.24	31681±03	299.519		
11500	11505.9	199198±04	195347±03	223.63	223.63	30431±03	299.781		
11750	11755.5	1918C4±04	188096±03	223.91	223.91	29265±03	299.970		
12000	12005.2	1846C6±04	181037±03	224.14	224.14	29137±03	300.128		
12250	12254.8	177787±04	174349±03	224.29	224.29	27080±03	300.228		
12500	12504.4	171148±04	167839±03	224.41	224.41	26055±03	300.304		
12750	12754.0	164724±04	161549±03	224.48	224.48	25070±03	300.355		
13000	13003.6	158564±04	155498±03	224.53	224.53	24127±03	300.384		
13250	13253.1	152742±04	149789±03	224.53	224.53	23240±03	300.387		
13500	13502.6	147081±04	144237±03	224.52	224.52	22380±03	300.381		
13750	13752.2	1416C8±04	138570±03	224.50	224.50	21549±03	300.368		
14000	14001.6	136335±04	133699±03	224.47	224.47	20749±03	300.347		
14250	14251.1	13126C0±04	128722±03	224.43	224.43	19981±03	300.320		
14500	14500.6	125381±04	123937±03	224.38	224.38	19242±03	300.288		
14750	14750.0	121691±04	119338±03	224.33	224.33	16532±03	300.254		
15000	14999.4	117185±04	114920±03	224.28	224.28	17851±03	300.216		
15250	15248.8	112680±04	110301±03	224.22	224.22	17168±03	300.178		
15500	15498.2	108486±04	106388±03	224.16	224.16	16534±03	300.136		
15750	15747.5	104467±04	102448±03	224.09	224.09	15926±03	300.092		

STATION	ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA	THERMODYNAMIC QUANTITIES					
		LATITUDE	LONGITUDE		UNITS: SEE COLUMN HEADINGS					
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE			
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W	UNITS: SEE COLUMN HEADINGS					
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE	
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb	
16000	15996.9	10613+04	986673+02	224.02	224.02	15343+03	300.047			
16250	16246.2	969172+03	950433+C2	223.95	223.95	14784+03	300.001			
16500	16495.5	932217+03	914193+02	223.88	223.88	14225+03	299.954			
16750	16744.8	897654+03	880298+02	223.81	223.81	13702+03	299.906			
17000	16994.0	864726+03	848006+02	223.74	223.74	13204+03	299.857			
17250	17243.3	831757+03	815715+02	223.67	223.67	12705+03	299.808			
17500	17492.5	801061+03	785592+02	223.60	223.60	12240+03	299.762			
17750	17741.7	77C364+03	755469+02	223.53	223.53	11774+03	299.717			
18000	17990.8	741979+03	727633+02	223.46	223.46	11344+03	299.668			
18250	18240.0	715027+03	701202+02	223.38	223.38	10935+03	299.616			
18500	18489.1	688075+03	674771+02	223.30	223.30	10527+03	299.565			
18750	18736.3	662963+03	650144+02	223.22	223.22	10146+03	299.511			
19000	19987.4	637850+03	625518+C2	223.14	223.14	97655+02	299.457			
19250	19236.4	612738+03	600891+02	223.06	223.06	93844+02	299.403			
19500	19485.5	590336+03	578922+02	222.98	222.98	90446+02	299.349			
19750	19734.6	567934+03	556953+02	222.90	222.90	87045+02	299.295			
20000	19983.6	5472E7+03	536705+C2	222.83	222.83	83906+02	299.249			
20250	20232.6	526640+03	516457+02	222.77	222.77	80765+02	299.204			
20500	20481.6	507664+03	497848+02	222.72	222.72	77870+02	299.176			
20750	20730.5	4886E9+03	479240+C2	222.68	222.68	74973+02	299.148			
21000	20979.5	469713+03	460631+02	222.64	222.64	72075+02	299.120			
21250	21228.4	452793+03	444038+C2	222.59	222.59	69493+02	299.089			
21500	21477.3	435873+03	427446+02	222.55	222.55	66911+02	299.057			
21750	21726.2	418953+03	410853+02	222.50	222.50	64327+02	299.026			
22000	21975.1	403989+03	396177+02	222.43	222.43	62050+02	298.975			
22250	22223.9	389024+03	381502+02	222.35	222.35	59772+02	298.925			
22500	22472.7	374059+03	366827+02	222.28	222.28	57492+02	298.875			
22750	22721.5	359054+03	352151+02	222.20	222.20	55211+02	298.824			
23000	22970.3	346368+03	339671+02	222.24	222.24	53244+02	298.851			
23250	23219.1	333642+03	327191+02	222.28	222.28	51278+02	298.879			
23500	23467.8	320915+03	314710+C2	222.32	222.32	49314+02	298.906			
23750	23716.6	308189+03	3C2230+02	222.36	222.36	47349+02	298.933			
24000	23965.3	297444+03	291693+02	222.47	222.47	45677+02	299.005			
24250	24214.0	286659+03	281156+02	222.58	222.58	44006+02	299.076			
24500	24462.7	275954+03	270619+02	222.68	222.68	42336+02	299.148			
24750	24711.3	2652C9+03	260082+02	222.79	222.79	40668+02	299.219			
25000	24959.9	256223+03	251269+02	222.85	222.85	39280+02	299.259			
25250	25238.6	247237+03	242457+02	222.91	222.91	37892+02	299.298			
25500	25457.1	238251+03	233645+02	222.97	222.97	36505+02	299.338			
25750	25705.7	2292E5+03	224832+02	223.02	223.02	35119+02	299.377			
26000	25954.3	22C279+03	216020+02	223.08	223.08	33734+02	299.417			
26250	26202.8	211293+03	207208+02	223.14	223.14	32349+02	299.456			
26500	26451.3	203424+03	200391+02	223.21	223.21	31275+02	299.503			
26750	26699.8	197391+03	193574+02	223.28	223.28	30202+02	299.549			
27000	26948.3	19C440+03	186758+02	223.35	223.35	29129+02	299.595			
27250	27196.8	1834E9+03	179941+C2	223.42	223.42	28058+02	299.642			
27500	27452.5	176538+03	173124+02	223.49	223.49	26986+02	299.688			
27750	27693.6	169566+03	166308+02	223.56	223.56	25916+02	299.735			
28000	27942.0	162625+03	159491+02	223.63	223.63	24846+02	299.781			
28250	28190.4	155684+03	152674+02	223.69	223.69	23776+02	299.827			
28500	28438.8	15086C+03	147943+C2	223.87	223.87	23022+02	299.946			
28750	28687.1	146036+03	143213+C2	224.05	224.05	22268+02	300.064			
29000	28935.4	141212+03	138482+C2	224.22	224.22	21515+02	300.182			
29250	29163.7	136588+03	133751+02	224.40	224.40	20764+02	300.300			
29500	29432.0	131444+03	129021+02	224.58	224.58	20014+02	300.418			
29750	29680.3	126740+03	124290+02	224.75	224.75	19265+02	300.536			
30000	29928.5	121916+03	119559+02	224.93	224.93	18517+02	300.654			

## IRIG - RANGE REFERENCE ATMOSPHERE, MAY

## TABLE I.5

STATION	ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA	THERMODYNAMIC QUANTITIES				
		LATITUDE	LONGITUDE		VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	
FAIRBANKS, ALASKA	134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960	FORT GREELY MISSILE RANGE LAUNCH SITE				
LAUNCH SITE-FORT GREELY	392	63° 59' N	145° 43' W	UNITS: SEE COLUMN HEADINGS					
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	
0	0.0	102869+05	100880+C4	283.90	284.61	12348+04	338.196	52	6.707
250	250.6	999343+04	980021+C3	282.36	283.02	12063+04	337.249	52	6.049
500	501.1	969955+04	951240+C3	280.62	281.43	11775+04	336.300	52	5.449
511	511.9	968732+04	950090+C3	280.75	281.36	11763+04	336.259	52	5.425
750	751.6	940869+04	922697+C3	279.15	279.71	11492+04	335.274	52	4.915
1000	1012.2	912469+04	894827+C3	277.25	277.78	11222+04	334.114	54	4.470
1250	1252.6	884728+04	867622+C3	275.27	275.76	10961+04	332.898	57	4.105
1500	1503.1	857507+04	840927+03	273.30	273.77	10701+04	331.694	61	3.799
1750	1753.6	831072+04	815003+03	271.34	271.78	10447+04	330.484	65	3.489
2000	2004.0	805288+04	789718+03	269.23	269.63	10203+04	329.177	67	3.078
2250	2254.4	779950+04	764909+C3	267.22	267.58	99584+C3	327.923	68	2.692
2500	2504.8	755292+04	740688+03	265.55	265.87	97051+03	326.873	69	2.384
2750	2755.2	73.403+04	717261+C3	264.15	264.45	94487+C3	325.998	69	2.152
3000	3005.5	703024+04	694344+C3	262.65	262.93	91997+03	325.059	70	1.947
3250	3255.9	685263+04	672013+03	261.04	261.30	89595+03	324.049	71	1.740
3500	3506.2	663058+04	650277+03	259.42	259.65	87247+03	323.025	71	1.506
3750	3756.5	641672+04	629265+03	257.86	258.05	84949+03	322.032	66	1.237
4000	4006.7	620725+04	608723+03	256.28	256.44	82693+C3	321.025	61	1.012
4250	4257.0	603184+04	588711+03	254.65	254.79	80494+03	319.986	58	0.840
4500	4507.2	580461+04	569238+03	253.00	253.11	78346+03	318.934	56	0.703
4750	4757.5	562946+04	550120+C3	251.34	251.44	76216+C3	317.878	55	0.589
5000	5007.6	542155+04	531673+C3	249.71	249.80	74147+03	316.839	53	0.493
5250	5257.8	523689+04	513759+C3	248.02	248.10	72140+03	315.758	52	0.416
5500	5508.0	506113+04	496347+C3	246.23	246.30	70204+03	314.611	52	0.356
5750	5758.1	488874+04	479422+03	244.38	244.44	68326+03	313.422	53	0.304
6000	6008.2	471915+04	462791+C3	242.53	242.58	66461+03	312.228	53	0.257
6250	6258.3	455572+04	446764+03	240.74	240.78	64639+03	311.066	52	0.213
6500	6508.4	439540+04	431042+03	238.97	239.00	62828+03	309.918	50	0.173
6750	6758.5	424117+04	415917+C3	237.18	237.21	61081+03	308.753	45	0.130
7000	7008.5	408950+04	501082+03	235.37	235.39	59358+03	307.567	38	0.092
7250	7258.5	394441+04	386815+03	233.53	233.54	57701+03	306.352	25	0.051
7500	7508.5	380174+04	372824+03	231.67	231.67	56062+03	30° 127	14	0.023
7750	7758.5	366464+04	359378+C3	229.82	229.82	54475+03	30° 25	5	0.008
8000	8008.5	353028+04	346202+03	227.97	227.97	52903+03	302 1	1	0.002
8250	8258.4	339938+04	333365+03	226.19	226.19	51342+03	301.498		
8500	8508.3	327238+04	320911+C3	224.55	224.55	49786+03	300.402		
8750	8758.2	315127+04	309034+03	223.22	223.22	48230+03	299.506		
9000	9008.1	303297+04	297432+C3	221.92	221.92	46691+03	298.634		
9250	9258.0	291811+04	286169+03	220.85	220.85	45140+03	297.914		
9500	9507.8	281784+04	275280+C3	221.13	221.13	43565+03	297.428		
9750	9757.6	270009+04	264788+C3	219.81	219.81	41966+03	297.209		
10000	10007.4	259724+04	254702+C3	219.86	219.86	40° 57+C3	297.248		
10250	10257.2	245860+04	245029+03	220.47	220.47	38° 18+03	297.656		
10500	10507.0	240420+04	235772+03	221.27	221.27	37121+03	298.195		
10750	10756.7	231391+04	226917+C3	222.09	222.09	35594+03	298.748		
11000	11006.5	222756+04	218449+03	222.85	222.85	34150+C3	299.257		
11250	11256.2	214499+04	210352+03	223.49	223.49	32789+03	299.691		
11500	11505.9	204243+04	202255+03	224.14	224.14	31435+03	300.125		
11750	11755.5	198571+04	194731+03	224.57	224.57	30208+03	300.411		
12000	12005.2	191121+04	187426+03	224.92	224.92	29330+03	300.644		
12250	12254.8	183944+04	180388+C3	225.18	225.18	27908+03	300.818		
12500	12504.4	177176+04	173750+03	225.31	225.31	26865+03	300.996		
12750	12754.0	170586+04	167287+03	225.39	225.39	25856+03	300.964		
13000	13003.6	164222+04	161045+C3	225.44	225.44	24886+03	300.991		
13250	13253.1	158297+04	155604+C3	225.44	225.44	23959+03	300.992		
13500	13502.6	152312+04	149367+C3	225.41	225.41	23085+C3	300.973		
13750	13752.2	146685+04	143849+C3	225.37	225.37	22236+03	300.946		
14000	14001.6	141245+04	138514+03	225.31	225.31	21417+03	300.976		
14250	14251.1	136001+04	133372+03	225.23	225.23	20629+C3	300.852		
14500	14500.6	132955+04	128423+C3	225.13	225.13	19972+C3	300.786		
14750	14750.0	126100+04	123662+C3	224.99	224.99	19147+C3	300.695		
15000	14799.4	121431+04	119083+C3	224.85	224.85	15 5+C3	300.601		
15250	15248.8	116943+04	114682+03	224.72	224.72	17778+03	300.515		
15500	15498.2	112455+04	110280+C3	224.59	224.59	17106+03	300.429		
15750	15747.5	106279+04	106186+03	224.50	224.50	16477+03	300.368		

## (CONTINUED) IRIG - RANGE REFERENCE ATMOSPHERE, MAY

## TABLE I.5

STATION	ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA	THERMODYNAMIC QUANTITIES				
		LATITUDE	LONGITUDE		UNITS: SEE COLUMN HEADINGS				
FAIRBANKS, ALASKA	134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960	FORT GREELY MISSILE RANGE LAUNCH SITE				
LAUNCH SITE-FORT GREELY	392	63° 59' N	145° 43' W						
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
16000	15996.9	104274+04	102258+03	224.44	224.44	15872+03	300.324		
16250	16246.2	100421+04	984895+02	224.41	224.41	15289+03	300.309		
16500	16495.5	967481+03	948774+02	224.41	224.41	14729+03	300.304		
16750	16744.8	930648+03	912654+02	224.40	224.40	14169+03	300.298		
17000	16994.0	896229+03	878901+02	224.40	224.40	13645+03	300.297		
17250	17243.3	863440+03	846745+02	224.39	224.39	13146+03	300.295		
17500	17492.5	830650+03	814589+02	224.39	224.39	12647+03	300.294		
17750	17741.7	800079+03	784610+02	224.39	224.39	12181+03	300.294		
18000	17990.8	7695C9+03	754631+02	224.39	224.39	11716+03	300.295		
18250	18240.0	741271+03	726939+02	224.38	224.38	11286+03	300.288		
18500	18489.1	714458+03	700644+02	224.36	224.36	10879+03	300.276		
18750	18738.3	687644+03	674349+02	224.35	224.35	10471+03	300.264		
19000	18987.4	662668+03	649855+02	224.33	224.33	10092+03	300.249		
19250	19236.4	637692+03	625362+02	224.30	224.30	97126+02	300.234		
19500	19485.5	612716+03	600869+02	224.28	224.28	93331+02	300.220		
19750	19734.6	59C438+03	579022+02	224.26	224.26	89947+02	300.204		
20000	19983.6	568161+03	557176+02	224.23	224.23	86563+02	300.188		
20250	20232.6	547635+03	537046+02	224.24	224.24	83434+02	300.189		
20500	20481.6	5271C9+03	516917+02	224.24	224.24	80306+02	300.191		
20750	20730.5	508254+03	498427+02	224.29	224.29	77414+02	300.229		
21000	20979.5	4894C0+03	479938+02	224.35	224.35	74524+02	300.267		
21250	21228.4	47C546+03	461448+02	224.41	224.41	71634+02	300.305		
21500	21477.3	453739+03	444966+02	224.44	224.44	69067+02	300.325		
21750	21726.2	436932+03	428484+02	224.47	224.47	66499+02	300.345		
22000	21975.1	420125+03	412002+02	224.50	224.50	63933+02	300.365		
22250	22223.9	405257+03	397421+02	224.44	224.44	61686+02	300.327		
22500	22472.7	3903C9+03	382841+02	224.38	224.38	59438+02	300.288		
22750	22721.5	375521+03	368260+02	224.33	224.33	57189+02	300.250		
23000	22970.3	36C453+03	353679-02	224.27	224.27	54939+02	300.211		
23250	23219.1	3480C2+03	341273+02	224.45	224.45	52968+02	300.335		
23500	23467.8	335351+03	328867+02	224.64	224.64	51000+02	300.459		
23750	23716.6	3227C1+03	316461+02	224.82	224.82	49036+02	300.583		
24000	23965.3	31C5C0+03	304055+02	225.01	225.01	47C75+02	300.707		
24250	24214.0	299394+03	293606+02	225.32	225.32	45395+02	300.912		
24500	24462.7	288739+03	283156+02	225.62	225.62	43720+02	301.118		
24750	24711.3	278083+03	2727C6+02	225.93	225.93	42049+02	301.323		
25000	24959.9	267427+03	262256+02	226.24	226.24	40383+02	301.526		
25250	25236.6	256771+03	2518C7+02	226.55	226.55	38721+02	301.732		
25500	25457.1	24163+03	243365+02	226.68	226.68	37401+02	301.822		
25750	257C5.7	235954+03	234922+02	226.82	226.82	36682+02	301.911		
26000	25954.3	23C946+03	22648C+02	226.95	226.95	34765+02	302.000		
26250	26292.8	222327+03	218C38+02	227.08	227.08	33449+02	302.090		
26500	26451.3	213728+03	20C956+02	227.22	227.22	32135+02	302.179		
26750	26699.8	205120+03	201154+02	227.35	227.35	30823+02	302.268		
27000	26948.3	198490+03	194652+02	227.54	227.54	29801+02	302.395		
27250	27196.8	191860+03	188150+02	227.73	227.73	28782+02	302.522		
27500	27445.2	185220+03	181648+02	227.92	227.92	27764+02	302.648		
27750	27693.6	178600+03	175147+02	228.12	228.12	26748+02	302.775		
28000	27942.0	171970+03	168645+02	228.31	228.31	25733+02	302.902		
28250	28192.4	165340+03	162143+02	228.50	228.50	24720+02	303.028		
28500	28438.8	15871C+03	155641+02	228.69	228.69	237C9+02	303.155		
28750	28687.1	153760+03	150983+02	229.19	229.19	22950+02	303.486		
29000	28935.4	149211+03	146326+02	229.69	229.69	22193+02	303.817		
29250	29183.7	144461+03	141668+02	230.19	230.19	21440+02	304.147		
29500	29432.7	139712+03	137013+02	230.69	230.69	2069C+02	304.477		
29750	29680.3	134962+03	132353+02	231.19	231.19	19944+02	304.817		
30000	29928.5	13C213+03	127695+02	231.69	231.69	192C0+02	305.136		

## IRIG - RANGE REFERENCE ATMOSPHERE, JUNE

TABLE I.6

STATION		ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES		
			LATITUDE	LONGITUDE			UNITS: SEE COLUMN HEADINGS		
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W					
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
0	C.0	102874+05	102684+C4	289.20	290.42	121C2+04	341.627	61	11.121
250	250.6	99980+C04	980645+C3	287.72	288.85	11827+C4	340.708	61	10.114
500	501.1	971224+04	952445+C3	286.25	287.30	11549+04	339.790	61	9.189
522	522.8	96873+C04	950000+C3	286.12	287.16	11525+C4	339.710	61	9.112
750	751.6	942697+C04	924470+C3	284.65	285.63	11275+04	338.799	61	8.314
1000	1022.2	914823+C04	897135+C3	282.87	283.77	11C14+C4	337.695	62	7.498
1250	1252.6	88744+C04	870301+C3	280.98	281.81	1C759+C4	336.528	63	6.778
1500	1523.1	860864+C04	844219+C3	279.02	279.80	10511+C4	335.327	66	6.194
1750	1753.6	834948+C4	818766+C3	277.08	277.81	10267+C4	334.131	69	5.660
2000	2034.1	806418+C04	793788+C3	275.15	275.82	10C26+C4	332.933	72	5.102
2250	2252.4	7847C0+C04	769528+C3	273.28	273.89	97879+C03	331.764	73	4.526
2500	2504.8	760449+C04	745746+C3	271.49	272.05	95496+C03	330.647	73	3.996
2750	2755.2	736776+C04	722530+C3	269.80	270.30	93120+C03	329.586	73	3.516
3000	3025.5	712854+C04	700052+C3	268.17	268.62	90786+C03	328.559	72	3.080
3250	3255.9	691415+C04	678046+C3	266.57	266.97	88479+C03	327.546	71	2.688
3500	3506.2	669528+C04	656583+C3	265.01	265.37	86195+C03	326.562	70	2.333
3750	3756.5	648216+C04	635683+C3	263.52	263.84	83935+C03	325.620	68	2.013
4000	4066.7	627476+C04	615344+C3	262.03	262.31	81723+C03	324.674	65	1.725
4250	4257.0	607294+C04	595552+C3	260.48	260.72	79575+C03	323.693	63	1.469
4500	4507.2	587655+C04	576293+C3	258.87	259.08	77490+C03	322.671	61	1.242
4750	4757.5	568245+C04	557552+C3	257.21	257.39	75462+C03	321.618	58	1.042
5000	5077.6	549951+C04	539318+C3	255.51	255.66	73488+C03	320.536	56	0.864
5250	5257.8	531670+C04	521390+C3	253.79	253.92	71533+C03	319.442	54	0.716
5500	5528.0	514040+C04	504191+C3	252.04	252.15	69646+C03	318.326	52	0.596
5750	5758.1	496964+C04	482729+C3	250.27	250.37	67804+C03	317.198	51	0.499
6000	6028.2	480C70+C04	470788+C3	248.48	248.57	65981+C03	316.058	50	0.419
6250	6258.3	463841+C04	454873+C3	246.67	246.74	64223+C03	314.892	50	0.353
6500	6508.4	448062+C04	439418+C3	244.82	244.89	62510+C03	313.710	51	0.305
6750	6758.5	432599+C04	424235+C3	242.96	243.02	60814+C03	312.509	50	0.255
7000	7008.5	417676+C04	409601+C3	241.06	241.10	59183+C03	311.274	46	0.192
7250	7258.5	403631+C04	395239+C3	239.15	239.18	57566+C03	310.033	36	0.126
7500	7508.5	388745+C04	381229+C3	237.23	237.25	55979+C03	308.776	24	0.069
7750	7758.5	375035+C04	367784+C3	235.27	235.28	54456+C03	307.492	12	0.030
8000	8008.5	361588+C04	354597+C3	233.31	233.31	52948+C03	306.201	3	0.006
8250	8258.4	348480+C04	341743+C3	231.40	231.40	51449+C03	304.945		
8500	8508.3	335921+C04	329426+C3	229.51	229.51	50003+C03	303.699		
8750	8758.2	323620+C04	317363+C3	227.64	227.64	48567+C03	302.461		
9000	9030.1	311634+C04	305608+C3	225.83	225.83	47144+C03	301.252		
9250	9258.0	299966+C04	294185+C3	223.76	223.76	45802+C03	299.868		
9500	9507.8	266681+C04	283C99+C3	221.88	221.88	44449+C03	298.607		
9750	9757.6	277731+C04	272361+C3	220.45	220.45	43040+C03	297.646		
10000	10007.4	267152+C04	261987+C3	219.59	219.59	41563+C03	297.062		
10250	10257.2	256960+C04	251991+C3	219.29	219.29	40032+C03	296.860		
10500	10507.0	247173+C04	242394+C3	219.81	219.81	38415+C03	297.215		
10750	10756.7	2378C1+C04	233204+C3	220.62	220.62	36824+C03	297.758		
11000	11036.5	228837+C04	224413+C3	221.51	221.51	35293+C03	298.362		
11250	11256.2	220268+C04	216099+C3	222.40	222.40	33836+C03	298.959		
11500	11505.9	212077+C04	207977+C3	223.21	223.21	32459+C03	299.504		
11750	11755.5	204099+C04	200153+C3	223.98	223.98	31131+C03	300.017		
12000	12005.2	196369+C04	192592+C3	224.65	224.65	29865+C03	300.470		
12250	12254.8	188993+C04	185336+C3	225.20	225.20	2867C03	300.833		
12500	12504.4	182534+C04	178514+C3	225.52	225.52	27575+C3	301.050		
12750	12754.0	175264+C04	171875+C3	225.73	225.73	26526+C03	301.185		
13000	13033.6	168729+C04	165466+C3	225.83	225.83	25525+C3	301.252		
13250	13253.1	162554+C04	159411+C3	225.84	225.84	24590+C03	301.260		
13500	13502.6	156545+C04	153518+C3	225.83	225.83	23682+C3	301.257		
13750	13752.2	15C734+C04	147820+C3	225.83	225.83	22803+C3	301.253		
14000	14001.6	145135+C04	142329+C3	225.82	225.82	21957+C03	301.246		
14250	14251.1	139749+C04	137047+C3	225.80	225.80	2114+C03	301.236		
14500	14500.6	134569+C04	131967+C3	225.78	225.78	20361+C03	301.224		
14750	14750.0	129567+C04	127081+C3	225.77	225.77	196C9+C3	301.213		
15000	14999.4	124756+C04	122363+C3	225.75	225.75	18886+C03	301.199		
15250	15248.3	120190+C04	117866+C3	225.73	225.73	18190+C03	301.190		
15500	15498.2	115763+C04	113525+C3	225.73	225.73	17520+C03	301.188		
15750	15747.5	111511+C04	1C9355+C3	225.74	225.74	16876+C03	301.194		

## (CONTINUED) IRIG-RANGE REFERENCE ATMOSPHERE, JUNE

## TABLE I.6

STATION		ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES		
			LATITUDE	LONGITUDE					
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W	UNITS: SEE COLUMN HEADINGS				
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
16020	15996.9	107259+04	105185+03	225.75	225.75	16232+03	301.200		
16250	16246.2	107355+04	101317+03	225.78	225.76	15631+03	301.221		
16500	16495.5	995134+03	975893+02	225.75	225.75	15060+03	301.200		
16750	16744.8	952789+03	940251+02	225.76	225.76	14509+03	301.226		
17000	16994.1	922444+03	9346C9+02	225.77	225.77	13959+03	301.212		
17250	17243.3	882551+03	871416+02	225.86	225.86	13441+03	301.276		
17500	17492.5	8562F6+03	839729+02	226.00	226.00	12944+03	301.367		
17750	17741.7	823981+03	808C50+02	226.14	226.14	12448+03	301.458		
18000	17990.8	793964+03	778613+02	226.65	226.65	11967+03	301.622		
18250	18241.0	765464+03	750683+02	226.99	226.99	11521+03	302.131		
18500	18489.1	7373C3+03	722753+02	227.34	227.34	11C75+03	302.259		
18750	18738.3	712465+03	696729+02	227.38	227.38	10674+03	302.259		
19000	18987.4	683928+03	6707C4+02	227.43	227.43	10274+03	302.320		
19250	19236.4	659334+03	646566+02	227.22	227.22	99135+02	302.177		
19500	19485.5	634741+03	622468+02	227.03	227.00	95528+02	302.034		
19750	19734.6	611961+02	600129+02	226.54	226.54	92286+02	301.729		
20000	19963.6	589112+03	577790+02	226.08	226.08	89130+02	301.424		
20250	20232.6	5664C3+03	555451+02	225.63	225.63	85762+02	301.119		
20500	20481.6	545982+03	535426+02	225.51	225.51	82714+02	301.038		
20750	20731.5	525562+03	5154C0+02	225.38	225.38	79664+02	300.957		
21000	20979.5	506867+03	497067+02	225.71	225.71	76718+02	301.176		
21250	21228.4	488172+03	478734+02	226.04	226.04	73782+02	301.394		
21500	21477.3	469478+03	46040C+02	226.37	226.37	70853+02	301.613		
21750	21726.2	452852+03	444135+02	226.75	226.75	68235+02	301.866		
22000	21975.1	436316+03	427873+02	227.13	227.13	65626+02	302.119		
22250	22223.9	419720+03	411625+02	227.51	227.51	63026+02	302.372		
22500	22472.7	405755+03	397263+02	227.71	227.71	60777+02	302.524		
22750	22721.5	394741+03	382921+02	227.91	227.91	58532+02	302.636		
23000	22970.3	375646+03	368579+02	228.10	228.10	56290+02	302.768		
23250	23219.1	361222+03	354237+02	228.30	228.30	54153+02	302.970		
23500	23467.8	348783+03	342039+02	228.55	228.55	52136+02	303.062		
23750	23716.6	336345+03	329841+02	228.79	228.79	50223+02	303.224		
24000	23965.3	323965+03	317643+02	229.04	229.04	48314+02	303.386		
24250	24214.1	311468+03	305445+02	229.28	229.28	46409+02	303.548		
24500	24462.7	300967+03	295147+02	229.57	229.57	44768+02	303.738		
24750	24711.3	291466+03	284850+02	229.86	229.86	43172+02	303.928		
25000	24959.9	279945+03	274552+02	230.14	230.14	41559+02	304.119		
25250	25206.6	269444+03	264254+02	230.43	230.43	39950+02	304.339		
25500	25457.1	256963+03	253956+02	230.72	230.72	38345+02	304.499		
25750	25715.7	254545+03	245611+02	230.93	230.93	37051+02	304.638		
26000	25954.3	241944+03	237266+02	231.14	231.14	3576u+02	304.778		
26250	26212.8	233424+03	228921+02	231.36	231.36	3447C+02	304.918		
26500	26451.3	224925+03	220576+02	231.57	231.57	33183+02	305.057		
26750	26699.8	216415+03	212231+02	231.78	231.78	316994+02	305.197		
27000	26948.3	207955+03	203886+02	231.99	231.99	30616+02	305.337		
27250	27196.8	201358+03	197445+02	232.25	232.25	29616+02	305.510		
27500	27445.2	194771+03	191C05+02	232.52	232.52	2817+02	305.682		
27750	27693.6	189214+03	184565+02	232.78	232.78	27521+02	305.855		
28000	27942.7	181627+03	178125+02	233.04	233.04	26527+02	306.028		
28250	28191.4	175075+03	171685+02	233.31	233.31	25336+02	306.200		
28500	28438.8	168533+03	165245+02	233.57	233.57	24c46+02	306.373		
28750	28687.1	161956+03	1586C54+02	233.83	233.83	23659+02	306.545		
29000	28935.4	154369+03	152365+02	234.09	234.09	22674+02	306.717		
29250	29183.7	150759+03	1476P3+02	234.54	234.54	21765+02	307.011		
29500	29432.1	142229+03	1434C2+02	234.99	234.99	21259+02	307.34		
29750	29688.3	141642+03	138921+02	235.44	235.44	21556+02	307.597		
30000	29928.5	137C97+03	134440+02	235.89	235.89	19655+02	307.889		

## IRIG - RANGE REFERENCE ATMOSPHERE, JULY

## TABLE I.7

STATION		ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES		
			LATITUDE	LONGITUDE					
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W	UNITS: SLE COLUMN HEADINGS				
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm-2	mb	degrees K	degrees K	g m-3	m sec-1	percent	mb
0	0.0	103028+05	1031016+04	291.09	292.74	12.21+04	342.993	73	15.604
250	25.6	103147+05	982110+03	289.32	290.83	11764.4	341.869	73	13.469
500	51.1	972669+04	954058+03	287.55	288.92	11504.04	340.747	73	11.965
536	537.4	968732+04	950030+03	287.29	288.65	11406+04	340.585	73	11.768
750	751.6	944475+04	926213+03	285.75	287.00	11242+04	339.615	72	10.686
1000	1012.2	916703+04	898978+03	284.06	285.20	10981.04	338.546	72	9.508
1250	1252.6	859437+04	872240+03	282.33	283.37	10723+04	337.459	72	8.442
1500	1503.1	862944+04	846259+03	281.56	281.51	10472+04	336.349	73	7.545
1750	1753.6	836959+04	826777+03	278.77	279.64	10225+04	335.232	74	6.784
2000	2004.0	811725+04	796030+03	276.99	277.81	99822.03	334.129	76	6.145
2250	2254.4	786958+04	771768+03	275.26	276.1	97408+03	333.056	78	5.561
2500	2504.8	762982+04	748229+03	273.63	274.32	95021.03	332.124	78	4.968
2750	2755.2	739468+04	725171+03	272.07	272.70	92640+03	331.042	78	4.403
3000	3005.5	716532+04	702678+03	270.61	271.17	90273+03	330.112	77	3.973
3250	3255.9	694199+04	680776+03	269.22	269.74	87922+03	329.243	76	3.490
3500	3506.2	672603+04	659558+03	267.83	268.31	85642+03	328.367	75	3.123
3750	3756.5	651467+04	638884+03	266.38	266.82	83415+03	327.454	74	2.731
4000	4006.7	632669+04	618691+03	264.90	265.29	81245+03	326.514	72	2.372
4250	4257.0	610849+04	599C29+03	263.40	263.74	79125+03	325.558	69	2.032
4500	4507.2	591327+04	579894+03	261.87	262.16	77058+03	324.584	66	1.715
4750	4757.5	572141+04	561078+03	260.31	260.57	75014+03	323.595	62	1.428
5000	5057.6	552640+04	542935+03	259.71	258.92	73051+03	322.569	57	1.156
5250	5257.2	535646+04	525290+03	257.75	257.23	71141+03	321.515	52	0.927
5500	5557.1	518144+04	508125+03	255.36	255.50	69280+03	320.437	49	0.752
5750	5758.1	500940+04	491254+03	253.64	253.76	67442+03	319.339	46	0.613
6000	6057.2	484345+04	474980+03	251.87	251.98	65668+03	318.217	46	0.518
6250	6258.2	469223+04	459170+03	250.10	250.19	63935+03	317.088	46	0.448
6500	6508.4	452361+04	443634+03	248.32	248.40	6216+02	315.253	49	0.408
6750	6758.5	437117+04	428656+03	246.52	246.60	60556+03	314.92	51	0.361
7000	7008.5	422114+04	413953+03	244.70	244.77	58915+03	313.634	51	0.322
7250	7258.5	407676+04	399793+03	242.92	242.97	57322+03	312.478	42	0.212
7500	7558.5	393517+04	385902+03	241.12	241.15	55748+03	311.325	30	0.128
7750	7758.5	379669+04	372348+03	239.21	239.22	54223+03	310.059	17	0.061
8000	8008.5	366417+04	359332+03	237.04	237.04	528C9+03	308.642	7	0.021
8250	8258.4	353388+04	346555+03	234.64	234.64	51453+03	307.673	2	0.005
8500	8508.3	340652+04	334066+03	232.13	232.13	50135+03	305.426		
8750	8758.2	322421+04	321594+03	229.65	229.65	48831+02	303.790		
9000	9008.1	316169+04	31C56+03	227.32	227.32	47515+03	302.249		
9250	9258.1	304554+04	2987.4+03	225.31	225.31	46165+03	300.928		
9500	9507.8	293267+04	287597+03	223.54	223.54	44820+03	299.722		
9750	9757.6	282253+04	276796+03	222.14	222.14	43409+03	298.781		
10000	10007.4	271557+04	266339+03	221.17	221.17	41952+03	298.129		
10250	10257.2	261303+04	256251+03	220.64	220.64	40467+03	297.772		
10500	10557.7	251466+04	246545+03	220.60	220.60	38934+03	297.747		
10750	10756.7	241907+04	237230+03	220.89	220.89	37414+03	297.939		
11000	11057.5	232804+04	2283+03	221.37	221.37	35926+03	298.265		
11250	11256.2	224092+04	219759+03	221.96	221.96	34491+03	298.665		
11500	11557.9	215337+04	211215+03	222.56	222.56	33061+03	299.365		
11750	11755.5	207317+04	203308+03	223.22	223.22	31729+03	299.510		
12000	12057.2	199491+04	195634+03	223.91	223.91	30437+03	299.374		
12250	12254.8	192104+04	188390+03	224.49	224.49	29235+03	300.358		
12500	12554.4	184918+04	181343+03	224.96	224.96	28882+03	300.677		
12750	12754.0	178118+04	174674+03	225.23	225.23	2717+03	300.854		
13000	13053.6	171499+04	168183+03	225.41	225.41	25992+03	300.975		
13250	13253.1	165102+04	161910+03	225.52	225.52	25011+03	301.049		
13500	13502.6	158946+04	15873+03	225.58	225.58	24371+03	301.091		
13750	13752.2	153210+04	150C73+03	225.62	225.62	23172+03	301.114		
14000	14001.6	147447+04	144596+03	225.66	225.66	22322+03	301.143		
14250	14251.1	14219+04	139273+03	225.70	225.70	21496+03	301.171		
14500	14501.6	136773+04	134129+03	225.74	225.74	20693+03	301.196		
14750	14750.0	131719+04	129173+03	225.78	225.78	19431+03	301.220		
15000	14993.4	126959+04	124455+03	225.82	225.82	19192+03	301.247		
15250	15246.6	122155+04	119823+03	225.85	225.85	18482+03	301.274		
15500	15493.2	117513+04	115241+03	225.90	225.90	17772+03	301.31		
15750	15747.5	113174+04	110985+03	225.95	225.95	17112+03	301.337		

## (CONTINUED) IRIG-RANGE REFERENCE ATMOSPHERE, JULY

## TABLE I.7

STATION		ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES		
			LATITUDE	LONGITUDE			UNITS: SEE COLUMN HEADINGS		
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREELY	392	63° 59' N	145° 43' W						
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
16030	15996.9	109010+04	106902+03	226.00	226.00	16479+03	301.365		
16250	16246.2	105013+04	102983+03	226.05	226.05	15871+03	301.471		
16500	16495.5	101179+04	992226+02	226.10	226.10	15288+03	301.434		
16750	16744.8	973448+03	954626+02	226.15	226.15	14705+03	301.467		
17000	16994.5	937727+03	919596+02	226.21	226.21	14162+03	301.519		
17250	17243.3	903588+03	886117+02	226.29	226.29	13642+03	301.559		
17500	17492.5	869449+03	852638+02	226.36	226.36	13122+03	301.639		
17750	17741.7	837716+03	821519+02	226.46	226.46	12636+03	301.672		
18000	17990.8	807454+03	791842+02	226.57	226.57	12175+03	301.747		
18250	18240.0	777152+03	762165+02	226.68	226.68	11713+03	301.823		
18500	18489.1	749304+03	734522+02	226.80	226.80	11283+03	301.899		
18750	18738.3	720817+03	706880+02	226.91	226.91	10853+03	301.974		
19000	18987.4	694764+03	681330+02	227.01	227.01	10456+03	302.042		
19250	19236.4	668710+03	655781+02	227.11	227.11	10059+03	302.119		
19500	19485.5	644650+03	632186+02	227.20	227.20	96933+02	302.168		
19750	19734.6	622551+03	608591+02	227.29	227.29	93280+02	302.226		
20000	19983.6	598364+03	586614+02	227.37	227.37	89999+02	302.231		
20250	2,232.6	576177+03	565036+02	227.45	227.45	86541+02	302.336		
20500	20481.6	555714+03	544970+02	227.52	227.52	83444+02	302.378		
20750	20730.5	535252+03	524903+02	227.58	227.58	80349+02	302.420		
21000	20977.5	514790+03	504636+02	227.64	227.64	77256+02	302.463		
21250	21228.4	496535+03	486935+02	227.71	227.71	74496+02	302.504		
21500	21477.3	478200+03	469033+02	227.77	227.77	71737+02	302.545		
21750	21726.2	462125+03	451131+02	227.83	227.83	68981+02	302.587		
22000	21975.1	443841+03	435259+02	227.90	227.90	66534+02	302.632		
22250	22223.9	427656+03	419387+02	227.97	227.97	64089+02	302.677		
22500	22472.7	411471+03	403515+02	228.03	228.03	61645+02	302.722		
22750	22721.5	397125+03	389456+02	228.10	228.10	59481+02	302.763		
23000	22970.3	382759+03	373597+02	228.16	228.16	57318+02	302.804		
23250	23219.1	369462+03	361338+02	228.22	228.22	55157+02	302.844		
23500	23467.8	355845+03	348965+02	228.43	228.43	53218+02	302.986		
23750	23716.6	343228+03	336592+02	228.65	228.65	51263+02	303.126		
24000	23965.3	330611+03	324219+02	228.86	228.86	49352+02	303.270		
24250	24214.0	317994+03	311846+02	229.08	229.08	47424+02	303.412		
24500	24462.7	307259+03	301358+02	229.38	229.38	45768+02	303.614		
24750	24711.3	296604+03	290870+02	229.69	229.69	44116+02	303.817		
25000	24959.9	285919+03	280381+02	229.99	229.99	42469+02	304.019		
25250	25208.6	275214+03	274983+02	230.30	230.30	40626+02	304.221		
25500	25457.1	264519+03	259405+02	230.61	230.61	39187+02	304.423		
25750	25705.7	255845+03	250598+02	230.84	230.84	37864+02	304.578		
26000	25954.3	247171+03	242392+02	231.07	231.07	36543+02	304.732		
26250	26202.8	238457+03	233685+02	231.31	231.31	35225+02	304.886		
26500	26451.3	229822+03	225379+02	231.54	231.54	33916+02	305.141		
26750	26699.8	221148+03	216672+02	231.78	231.78	32597+02	305.195		
27000	26948.3	212474+03	209366+02	232.01	232.01	31287+02	305.349		
27250	27196.8	205774+03	211800+02	232.25	232.25	30270+02	305.506		
27500	27445.2	199064+03	195235+02	232.49	232.49	29255+02	305.663		
27750	27693.6	192389+03	188670+02	232.73	232.73	28242+02	305.820		
28000	27942.0	185665+03	182104+02	232.96	232.96	27231+02	305.976		
28250	28190.4	179000+03	175539+02	233.20	233.20	26223+02	306.133		
28500	28439.8	172305+03	168974+02	233.44	233.44	25216+02	306.270		
28750	28687.1	165610+03	162408+02	233.68	233.68	24212+02	306.446		
29000	28935.4	159916+03	155843+02	233.92	233.92	23209+02	306.622		
29250	29133.7	154245+03	151262+02	234.29	234.29	22491+02	306.846		
29500	29432.0	149574+03	146682+02	234.67	234.67	21775+02	307.092		
29750	29680.3	144903+03	142101+02	235.04	235.04	21062+02	307.337		
30000	29920.5	142232+03	137210+02	235.42	235.42	20350+02	307.592		

## IRIG - RANGE REFERENCE ATMOSPHERE, AUGUST

## TABLE J.8

STATION		ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES		
			LATITUDE	LONGITUDE			UNITS: SEE COLUMN HEADINGS		
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W					
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	gm <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
250	250.0	1.25468+05	100879+04	288.70	290.16	12111+04	341.479	76	13.417
500	501.1	929850+04	980557+03	287.21	288.57	118386+04	340.536	76	12.185
521	521.8	97110+04	952329+03	285.71	286.98	11561+04	339.599	76	11.054
750	751.6	942548+04	924324+03	284.15	285.59	11538+04	339.522	76	10.965
1000	1004.2	914649+04	896964+03	282.44	283.46	11024+04	337.510	72	8.494
1250	1252.6	887268+04	872113+03	280.62	281.56	10766+04	336.381	74	7.702
1500	1503.1	86561+04	844200+03	278.65	279.51	10519+04	335.154	75	6.650
1750	1753.6	834653+04	818554+03	276.89	277.68	10269+04	334.051	76	6.099
2000	2004.0	809245+04	793598+03	275.74	276.50	99988+03	333.341	77	5.721
2250	2254.4	784643+04	769472+03	274.89	275.64	97251+03	332.822	79	5.490
2500	2504.8	767574+04	745868+03	273.39	274.08	94804+03	331.878	79	4.938
2750	2755.2	737361+04	722810+03	271.28	271.87	92618+03	330.541	78	4.160
3000	301.5	714104+04	70297+03	269.21	269.71	90452+03	329.227	76	3.470
3250	3255.9	691862+04	678484+03	267.76	268.21	88125+03	328.310	73	3.019
3500	351.6	671105+04	657148+03	266.39	266.80	85807+03	327.441	71	2.642
3750	3756.5	648954+04	636398+03	264.99	265.35	83544+03	326.555	70	2.315
4000	4026.7	622270+04	616122+03	263.57	263.90	81333+03	325.658	68	2.024
4250	4257.0	608154+04	596435+03	262.14	262.43	79175+03	324.750	66	1.753
4500	4527.2	588665+04	577283+03	260.68	260.94	77071+03	323.825	64	1.511
4750	4757.5	569671+04	558556+03	259.18	259.41	75024+03	322.875	62	1.305
5000	5017.6	55113+04	540349+03	257.64	257.84	73006+03	321.900	62	1.137
5250	5257.8	53312+04	522726+03	256.04	256.23	71068+03	320.898	61	0.990
5500	5508.1	515519+04	505552+03	254.42	254.58	69176+03	319.860	60	0.845
5750	5768.1	498517+04	488878+03	252.80	252.94	67332+03	318.824	56	0.690
6000	6028.2	461809+04	472494+03	251.16	251.27	65508+03	317.770	53	0.561
6250	6258.2	465702+04	456698+03	249.44	249.53	63758+03	316.671	50	0.461
6500	6508.4	449850+04	441191+03	247.64	247.72	62144+03	315.519	52	0.401
6750	6758.5	434652+04	426248+03	245.78	245.86	60097+03	314.230	52	0.343
7000	7008.5	419694+04	411579+03	243.44	244.00	58762+03	313.142	50	0.278
7250	7258.5	405263+04	397453+03	242.23	242.28	57150+03	312.031	40	0.190
7500	7508.5	391162+04	383599+03	240.54	240.56	55551+03	310.926	28	0.111
7750	7758.5	377356+04	376100+03	238.73	238.75	54003+03	309.750	14	0.050
8000	801.5	364178+04	357136+03	236.05	236.66	52571+03	308.373	5	0.014
8250	8258.4	351200+04	344410+03	234.30	234.30	51208+03	306.893	1	0.003
8500	8508.3	338525+04	331980+03	231.83	231.33	49886+03	305.231		
8750	8758.2	326340+04	320303+03	229.49	229.49	48581+03	303.587		
9000	9008.1	314355+04	309316+03	227.32	227.32	47249+03	302.247		
9250	9258.1	302745+04	296891+03	225.29	225.29	45909+03	300.894		
9500	9507.8	291424+04	285789+03	223.56	223.56	44533+03	299.740		
9750	9757.6	280456+04	275033+03	222.25	222.25	43110+03	298.857		
10000	10017.4	269659+04	264541+03	221.39	221.39	41643+03	298.276		
10250	10257.2	259545+04	254625+03	220.96	220.96	40145+03	297.987		
10500	10507.1	249326+04	244996+03	220.19	220.19	38604+03	296.574		
10750	10756.7	241466+04	235758+03	221.48	221.48	37093+03	298.339		
11000	11016.5	231360+04	226906+03	221.99	221.99	35608+03	298.682		
11250	11256.2	222736+04	218421+03	220.53	220.53	34196+03	299.143		
11500	11556.9	214467+04	210320+03	220.53	220.53	32851+03	299.384		
11750	11755.5	206156+04	202209+03	220.54	220.54	31512+03	299.725		
12000	12015.2	198507+04	194665+03	220.96	220.96	30281+03	300.014		
12250	12254.8	191142+04	187348+03	224.31	224.31	29096+03	300.241		
12500	1254.4	183851+04	180296+03	224.58	224.58	27967+03	300.422		
12750	12754.0	177219+04	173646+03	224.71	224.71	26924+03	300.539		
13000	13003.6	171447+04	167171+03	224.79	224.79	25967+03	300.562		
13250	13253.1	164657+04	160917+03	224.83	224.83	24934+03	300.586		
13500	13512.6	158064+04	155012+03	224.82	224.82	24119+03	300.583		
13750	13752.2	152213+04	149267+03	224.81	224.81	23130+03	300.577		
14000	1411.6	146546+04	143712+03	224.80	224.80	22271+03	300.568		
14250	14251.1	141767+04	138356+03	224.79	224.79	21443+03	300.557		
14500	14511.6	134554+04	133226+03	224.77	224.77	20646+03	300.547		
14750	14751.1	130763+04	128255+03	224.76	224.76	19879+03	300.539		
15000	14993.4	124928+04	123494+03	224.74	224.74	19143+03	300.528		
15250	15245.6	121230+04	118915+03	224.73	224.73	18434+03	300.522		
15500	15492.2	116761+04	114523+03	224.74	224.74	17752+03	300.526		
15750	15747.5	112209+04	110127+03	224.74	224.74	17070+03	300.520		

## (CONTINUED) IRIG - RANGE REFERENCE ATMOSPHERE, AUGUST

## TABLE I.8

STATION	ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES			
		LATITUDE	LONGITUDE	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE			
FAIRBANKS, ALASKA	134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960				FORT GREELY MISSILE RANGE LAUNCH SITE	
LAUNCH SITE-FORT GREELY	392	63° 59' N	145° 43' W	UNITS: SEE COLUMN HEADINGS					
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
16933	15996.9	102197.24	106646.3	224.76	224.78	16435.03	300.552		
16250	16246.2	104144.04	102130.03	224.92	224.92	15825.03	300.563		
16500	16495.5	103134.04	983766.02	224.95	224.95	15238.03	300.553		
16750	16744.8	966446.02	947759.02	224.97	224.97	14676.03	300.684		
17000	16994.1	925749.03	911773.02	225.05	225.05	14114.03	300.735		
17250	17243.3	895484.03	878169.02	225.12	225.12	13596.03	300.779		
17500	17492.5	862841.03	846158.02	225.17	225.17	13041.03	300.815		
17750	17741.7	830156.03	814146.02	225.23	225.23	12593.03	300.852		
18000	17990.8	795771.03	784397.02	225.26	225.26	12129.03	300.874		
18250	18241.0	765343.03	754468.02	225.29	225.29	11666.03	300.895		
18500	18491.1	741225.03	726954.02	225.31	225.31	11239.03	300.913		
18750	18738.3	714547.02	700731.02	225.33	225.33	10833.03	300.923		
19000	18987.4	687258.03	674559.02	225.35	225.35	10428.03	300.936		
19250	19236.4	662002.03	652181.02	225.37	225.37	10052.03	300.946		
19500	19485.5	638142.03	625603.02	225.39	225.39	96728.02	300.961		
19750	19734.6	611284.03	601426.02	225.41	225.41	92456.02	300.974		
20000	19983.6	591103.03	579574.02	225.44	225.44	89576.02	300.994		
20250	20234.4	562922.03	557922.02	225.47	225.47	86203.02	301.015		
20500	20481.6	542451.03	537855.02	225.49	225.49	83100.02	301.026		
21750	21731.5	528161.03	517851.02	225.51	225.51	73997.02	301.042		
21000	20979.5	504288.03	499441.02	225.54	225.54	77144.02	301.051		
21250	21226.4	497151.03	481031.02	225.57	225.57	74291.02	301.079		
21500	21477.3	471742.03	462211.02	225.59	225.59	71439.02	301.097		
21750	21726.2	454953.03	446193.02	225.64	225.64	68696.02	301.125		
22000	21975.1	438236.03	429765.02	225.66	225.66	66341.02	301.152		
22250	22223.9	421467.03	413333.02	225.72	225.72	63794.02	301.179		
22500	22474.7	406672.03	398259.02	225.77	225.77	61538.02	301.212		
22750	22721.5	391858.03	384281.02	225.81	225.81	59284.02	301.244		
23000	22971.3	377433.03	369753.02	225.85	225.85	57236.02	301.275		
23250	23219.1	362229.03	355225.02	225.91	225.91	54778.02	301.309		
23500	23467.9	349619.03	342659.02	226.11	226.11	52825.02	301.439		
23750	23716.6	337029.03	330493.02	226.30	226.30	50876.02	301.563		
24000	23965.3	324399.03	318126.02	226.49	226.49	48930.02	301.693		
24250	24214.1	311769.03	305766.02	226.59	226.59	46988.02	301.827		
24500	24462.7	301157.03	295334.02	226.97	226.97	45336.02	302.012		
24750	24711.2	290515.03	284428.02	227.24	227.24	43677.02	302.156		
25000	24565.6	279584.03	274432.02	227.52	227.52	42027.02	302.390		
25250	25276.4	265262.03	264056.02	227.86	227.86	40382.02	302.564		
25500	25571.1	252130.03	251320.02	228.07	228.07	38740.02	302.743		
25750	25715.7	250734.03	245596.02	228.29	228.29	37415.72	302.846		
26000	25644.3	241437.03	235759.02	228.52	228.52	36095.02	303.041		
26250	2627.2	232241.03	226339.02	228.74	228.74	34776.02	303.187		
26500	26451.3	224245.03	219059.02	228.95	228.95	33456.02	303.334		
26750	26699.8	215648.03	211475.02	229.18	229.18	32148.02	303.480		
27000	27045.2	207522.03	203044.02	229.40	229.40	30835.02	303.627		
27250	27194.0	201436.03	196563.02	229.67	229.67	29815.02	303.813		
27500	27445.2	193623.03	190072.02	229.93	229.93	28793.02	303.938		
27750	27793.9	187224.03	183654.02	230.20	230.20	27783.02	304.154		
28000	27942.7	181468.03	177395.02	230.45	230.45	26776.02	304.330		
28250	28117.4	173772.03	170524.02	230.73	230.73	25759.02	304.507		
28500	28434.7	167356.03	164121.02	231.0	231.0	24751.02	304.681		
28750	28571.1	167742.03	164731.02	231.26	231.26	23745.11	304.856		
29000	28715.6	164124.03	161144.02	231.43	231.43	22742.02	305.032		
29250	28811.7	165535.03	162543.02	231.65	231.65	22032.12	305.314		
29500	28911.1	164915.03	161143.02	231.79	231.79	21308.02	305.497		
29750	29144.3	167334.03	163747.02	232.02	232.02	20594.02	305.679		
30000	29319.1	167747.03	163142.02	232.25	232.25	19688.02	305.861		

## IRIG - RANGE REFERENCE ATMOSPHERE, SEPTEMBER TABLE I.9

STATION	ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES			
		LATITUDE	LONGITUDE			FORT GREELY MISSILE RANGE LAUNCH SITE			
FAIRBANKS, ALASKA	134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE			
LAUNCH SITE-FORT GREELY	392	63° 59' N	145° 43' W	UNITS: SEE COLUMN HEADINGS					
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	gm <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
0	0.0	1.2777405	100721.04	283.15	294.16	12346+04	337.925	76	9.447
250	25.0	997729.04	47838+03	281.77	282.71	12557+04	337.068	76	8.610
497	49.0	968720+04	95000+03	281.41	281.29	11765+04	336.218	76	7.848
500	50.1	968389+04	945664+03	280.75	280.90	11778+04	335.965	76	7.570
750	75.1	9393.0+04	921147+03	278.95	279.74	11471+04	335.290	74	6.866
1000	100.2	910764+04	853351+03	277.41	278.13	11169+04	334.325	74	6.132
1250	125.2	833324+04	866253+03	275.79	276.45	10716+04	333.315	74	5.505
1500	150.1	856598+04	839841+03	274.13	274.75	10549+04	332.253	75	4.443
1750	175.0	829991+04	813943+03	272.48	273.35	10385+04	331.254	75	4.415
2000	200.0	814361+04	788828+03	270.88	271.39	10126+04	330.249	75	3.913
2250	225.0	779294+04	764230+03	269.30	269.76	98692+03	329.255	75	3.458
2500	250.0	754539+04	740244+03	267.71	268.13	96176+03	328.259	74	3.050
2750	275.0	731165+04	717028+03	265.15	266.53	93720+03	327.276	74	2.755
3000	300.0	727954+04	694305+03	264.63	264.98	91260+03	326.324	75	2.426
3250	325.0	674416+04	672163+03	263.14	263.47	88876+03	325.392	76	2.186
3500	350.0	663444+04	650114+03	261.65	261.95	86526+03	324.452	76	1.931
3750	375.0	647267+04	64791+03	260.12	260.34	84622+03	323.478	72	1.639
4000	400.0	621444+04	613425+03	258.55	258.78	82411+03	322.484	70	1.402
4250	425.0	601212+04	59587+03	256.94	257.15	79874+03	321.466	71	1.237
4500	450.0	581318+04	570072+03	255.32	255.50	77728+03	320.436	72	1.090
4750	475.0	562151+04	551261+03	253.46	253.84	75656+03	319.394	71	0.933
5000	500.0	543529+04	533.01+03	252.07	252.20	73624+03	318.358	65	0.752
5250	525.0	525385+04	515227+03	250.42	250.53	71645+03	317.370	60	0.621
5500	550.0	517747+04	497950+03	248.71	248.81	69721+03	316.208	56	0.483
5750	575.0	497458+04	489975+03	246.98	247.06	67621+03	315.095	53	0.391
6000	600.0	473779+04	464618+03	245.19	245.26	65694+03	313.947	53	0.326
6250	625.0	457583+04	448736+03	243.36	243.42	64221+03	312.769	55	0.286
6500	650.0	441674+04	433134+03	241.42	241.57	62462+03	311.578	57	0.251
6750	675.0	426347+04	418104+03	239.66	239.73	60758+03	310.386	56	0.205
7000	700.0	411311+04	403357+03	237.96	237.90	59556+03	309.200	52	0.159
7250	725.0	394651+04	389178+03	236.20	236.22	57394+03	308.178	37	0.096
7500	750.0	382677+04	375277+03	234.47	234.49	55755+03	306.971	22	0.048
7750	775.0	368663+04	361731+03	232.62	232.63	54175+03	305.755	8	0.016
8000	800.0	356617+04	348741+03	230.49	230.49	52710+03	304.346	3	0.005
8250	825.0	342624+04	335095+03	228.28	228.28	51275+03	302.667	1	0.001
8500	85.0	328572+04	323567+03	226.12	226.12	49849+03	301.450		
8750	87.6	317625+04	311493+03	224.12	224.12	48417+03	290.111		
9000	90.0	305451+04	299937+03	222.00	222.40	46983+03	288.955		
9250	92.5	284344+04	288653+03	220.90	221.50	45521+03	297.949		
9500	95.0	273167+04	277692+03	219.77	219.77	44017+03	297.138		
9750	97.5	272362+04	267966+03	219.08	219.08	42471+03	296.720		
10000	100.0	261953+04	256888+03	218.43	218.83	40995+03	296.549		
10250	102.5	251953+04	247087+03	216.19	216.19	39271+03	296.793		
10500	105.0	247374+04	237700+03	214.93	214.83	37669+03	297.224		
10750	107.5	233252+04	228720+03	212.54	222.54	36128+03	297.778		
11000	110.0	224471+04	210133+03	221.23	221.23	34664+03	298.169		
11250	112.5	214717+04	211546+03	221.91	221.91	33229+03	298.630		
11500	115.0	217817+04	203594+03	222.44	222.44	31884+03	298.986		
11750	117.5	211774+04	194674+03	222.67	222.67	30618+03	299.271		
12000	120.0	198573+04	186551+03	221.14	221.14	29441+03	299.456		
12250	122.5	185744+04	181485+03	223.37	223.37	28305+03	299.59		
12500	125.0	178276+04	175151+03	223.50	223.50	27240+03	299.693		
12750	127.5	171531+04	163214+03	223.59	223.59	26229+03	299.752		
13000	130.0	165131+04	161658+03	223.64	223.64	25217+03	299.772		
13250	132.5	159531+04	159801+03	223.67	223.67	24266+03	299.814		
13500	135.0	153141+04	156630+03	223.44	223.69	23370+03	299.823		
13750	137.5	147320+04	144433+03	223.70	223.70	22504+03	299.830		
14000	140.0	141820+04	139320+03	223.70	223.70	21460+03	299.834		
14250	142.5	135544+04	133944+03	223.71	223.71	20551+03	299.834		
14500	145.0	131455+04	129894+03	223.71	223.70	20573+03	299.832		
14750	147.5	126457+04	124060+03	223.69	223.69	19325+03	299.874		
15000	150.0	121424+04	119373+03	223.68	223.68	18638+03	299.814		
15250	152.5	117165+04	115384+03	223.66	223.66	17918+03	299.804		
15500	155.0	112744+04	110804+03	223.65	223.65	17229+03	299.794		
15750	157.5	107576+04	106472+03	223.63	223.63	16587+03	299.785		

## (CONTINUED) IRIG-RANGE REFERENCE ATMOSPHERE, SEPTEMBER TABLE I.9

STATION		ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES			
			LATITUDE	LONGITUDE			UNITS: SEE COLUMN HEADINGS			
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE			
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W						
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE	
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb	
1600.0	15936.9	104546+04	102525+C3	223.62	223.62	15972+03	299.776			
16250	16246.2	103683+04	987363+C2	223.62	223.62	15382+03	299.776			
16500	16495.5	969807+C3	951C56+C2	223.61	223.61	14917+03	299.770			
16750	16744.8	932784+03	9147+9+C2	223.60	223.60	14252+03	299.764			
17000	16994.0	898169+03	88C803+C2	223.57	223.57	13725+03	299.741			
17250	17243.3	865200+03	848471+C2	223.51	223.51	13224+03	299.704			
17500	17492.5	832231+03	816140+02	223.46	223.46	12724+03	299.668			
17750	17741.7	801478+03	785982+02	223.38	223.38	12257+03	299.618			
18000	17990.8	770725+03	755823+02	223.31	223.31	11791+03	299.569			
18250	18240.0	742304+03	727951+C2	223.21	223.21	11361+03	299.504			
18500	18489.1	713382+03	700079+C2	223.12	223.12	10931+C2	299.439			
18750	18738.3	687622+03	674336+02	223.01	223.01	10534+03	299.365			
19000	18987.4	662710+C03	649897+02	222.90	222.90	10157+03	299.291			
19250	19236.4	637789+03	625457+C2	222.78	222.78	97803+02	299.217			
19500	19485.5	612868+03	601118+C2	222.67	222.67	94028+02	299.143			
19750	19734.6	590429+03	579613+C2	222.57	222.57	90627+C2	299.074			
20000	19983.6	567990+03	557008+C2	222.47	222.47	87223+02	299.005			
20250	20232.6	5473C8+03	536726+C2	222.40	222.40	84273+02	298.957			
20500	20481.6	526625+03	516443+C2	222.33	222.33	80922+C2	298.909			
20750	20730.5	507618+03	497803+02	222.28	222.28	78017+02	298.881			
21000	20979.5	486011+03	479164+C2	222.24	222.24	75110+02	298.852			
21250	21228.4	469644+03	460525+C2	222.20	222.20	72202+02	298.823			
21500	21477.3	452666+03	443914+02	222.20	222.20	69596+02	298.827			
21750	21726.2	435727+03	4273C3+02	222.21	222.21	66970+02	298.831			
22000	21975.1	418789+03	410692+C2	222.22	222.22	64384+02	298.835			
22250	22223.9	403831+03	396C23+02	222.27	222.27	62069+02	298.872			
22500	22472.7	388872+03	381353+02	222.33	222.33	59755+C2	298.910			
22750	22721.5	373914+03	366684+02	222.38	222.38	57442+02	298.947			
23000	22970.3	358956+03	352C15+02	222.44	222.44	55130+C2	298.984			
23250	23219.1	346251+03	339556+C2	222.47	222.47	53171+02	299.006			
23500	23467.8	333547+03	327098+02	222.50	222.50	51213+C2	299.027			
23750	23716.6	320642+03	314639+02	222.53	222.53	49256+02	299.048			
24000	23965.3	308138+03	302180+C2	222.56	222.56	47299+02	299.069			
24250	24214.0	297357+02	291647+C2	222.56	222.56	45647+02	299.079			
24500	24462.7	286657+03	281115+C2	222.59	222.59	43995+02	299.089			
24750	24711.3	275917+03	270582+C2	222.61	222.61	42344+C2	299.099			
25000	24959.9	265177+03	260449+C2	222.63	222.63	406C3-02	299.110			
25250	25208.6	256185+03	251232+C2	222.67	222.67	39306+02	299.138			
25500	25457.1	247154+03	242414+C2	222.71	222.71	37919+C2	299.166			
25750	25705.7	238252+03	233597+C2	222.75	222.75	36533+C2	299.194			
26000	25954.3	229211+03	224779+02	222.79	222.79	35147+C2	299.222			
26250	26202.8	22C220+03	215962+C2	222.83	222.83	33762+02	299.250			
26500	26451.3	211228+03	207144+C2	222.88	222.88	32378+02	299.276			
26750	26699.8	204282+03	200332+C2	223.02	223.02	31293+C2	299.373			
27000	26948.3	197335+03	193519+C2	223.16	223.16	30210+02	299.408			
27250	27196.8	19C308+03	186707+C2	223.30	223.30	29128+02	299.563			
27500	27445.4	183441+03	179894+C2	223.44	223.44	28047+02	299.657			
27750	27693.6	176494+03	173C82+C2	223.58	223.58	26968+02	299.752			
28000	27942.0	169547+03	166269+C2	223.72	223.72	25890+02	299.847			
28250	28192.4	1626C1+02	159457+C2	223.87	223.87	24814+02	299.942			
28500	28438.8	155654+03	152644+C2	224.01	224.01	23739+02	300.036			
28750	28687.1	150851+03	147935+C2	224.29	224.29	22977+02	300.225			
29000	28935.4	146049+03	143225+C2	224.57	224.57	22218+02	300.414			
29250	29183.7	141246+03	138515+C2	224.85	224.85	21466+02	300.602			
29500	29432.0	136444+03	133806+C2	225.14	225.14	20795+02	300.791			
29750	29680.3	131641+03	129096+u2	225.42	225.42	19951+02	300.979			
30000	29928.5	126839+03	124386+C2	225.70	225.70	19199+02	301.168			

## IRIG - RANGE REFERENCE ATMOSPHERE, OCTOBER

## TABLE I.10

STATION	ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES			
		LATITUDE	LONGITUDE			UNITS: SEE COLUMN HEADINGS			
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kg·m <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
0	0	102315+05	100337+04	272.89	273.34	12768+04	331.434	72	4.375
250	250.6	992654+04	973501+C3	271.62	272.05	12466+04	330.648	72	3.987
447	447.7	966737+04	950000+C3	270.3	271.3	12211+04	330.029	72	3.705
500	501.1	962235+04	943621+03	270.25	270.65	12146+04	329.797	74	3.663
750	751.6	932299+04	914273+C3	269.65	270.35	11794+04	329.432	75	3.572
1000	1022.2	903223+04	885759+C3	269.15	269.55	11447+04	329.129	76	3.457
1250	1252.6	875174+04	858085+C3	268.31	268.70	11125+04	328.605	76	3.274
1500	1553.1	847355+04	831011+C3	266.88	267.25	10833+04	327.717	78	3.012
1750	1753.6	821668+04	804801+C3	265.49	265.83	10547+C4	326.847	79	2.742
2000	2054.4	794724+04	779358+C3	264.73	265.05	10243+04	326.371	78	2.540
2250	2254.4	769372+04	754496+03	263.70	264.30	99562+C3	325.720	76	2.282
2500	2554.8	744619+04	730260+C3	261.83	262.39	97069+03	324.539	74	1.913
2750	2755.2	721762+04	706826+03	259.99	260.21	94629+03	323.375	72	1.611
3000	3055.5	697348+04	683884+C3	258.69	258.90	92023+03	322.556	71	1.425
3250	3255.9	674614+04	661570+C3	257.52	257.71	89430+03	321.817	70	1.277
3500	3556.2	652658+04	640039+C3	256.05	256.22	87622+03	320.887	69	1.118
3750	3756.5	631196+04	618992+03	254.45	254.60	84697+03	319.868	68	0.965
4000	4056.7	612285+04	598486+03	252.79	252.92	82434+03	318.813	68	0.827
4250	4257.0	589939+04	578533+C3	251.10	251.22	80226+03	317.738	66	0.702
4500	4557.2	570150+04	559127+C3	249.37	249.47	78077+03	316.632	64	0.585
4750	4757.5	555703+C04	540056+03	247.58	247.66	75967+03	315.478	61	0.468
5000	5057.6	531972+04	521686+03	245.74	245.81	73935+03	314.298	56	0.369
5250	5257.8	513760+04	503826+03	243.95	244.01	71930+03	313.146	55	0.304
5500	5558.0	496172+04	486460+C3	242.36	242.41	69913+03	312.117	59	0.282
5750	5758.1	478898+04	469638+03	240.55	240.59	68002+03	310.945	59	0.237
6000	6058.2	462023+04	453090+C3	238.56	238.60	66154+03	309.653	55	0.182
6250	6258.2	445728+04	437110+C3	235.94	235.96	64535+03	307.936	37	0.095
6500	6558.4	429711+04	421432+03	233.39	233.40	62898+03	306.261	19	0.038
6750	6758.5	414261+04	406251+03	231.26	231.26	61197+03	304.856	5	0.009
7000	7008.5	399114+04	391398+C3	229.71	229.71	59357+03	303.834		
7250	7258.5	384616+04	377170+03	228.55	228.55	57489+03	303.065		
7500	7508.5	374154+04	363253+C3	227.36	227.36	55659+03	302.272		
7750	7758.5	356836+04	349937+C3	225.08	225.88	53969+03	301.291		
8000	8008.5	342546+04	336904+03	224.31	224.31	52323+03	300.240		
8250	8258.4	330612+04	324220+03	222.74	222.74	50708+03	299.187		
8500	8508.3	318277+C4	311927+C3	221.28	221.28	49107+03	298.205		
8750	8758.2	305959+04	300044+C3	220.02	220.02	47506+03	297.357		
9000	9058.1	294427+04	288744+03	219.02	219.02	45928+03	296.675		
9250	9258.0	283211+04	277735+03	218.29	218.29	44323+03	296.183		
9500	9557.8	272357+C04	267084+C3	217.90	217.90	42699+03	295.922		
9750	9757.6	261851+04	256827+03	217.86	217.86	41068+03	295.891		
10000	10057.4	251853+04	246984+C3	218.31	218.31	39412+03	296.197		
10250	10257.2	242242+04	237558+03	218.06	218.06	37795+03	296.640		
10500	10507.0	233748+04	228542+03	219.65	219.65	36247+03	297.106		
10750	10756.7	224255+04	219919+03	220.29	220.29	34779+03	297.533		
11000	11056.5	215463+04	211297+03	220.92	220.92	33320+03	297.960		
11250	11256.2	207327+04	203318+C3	221.38	221.38	31995+C3	298.271		
11500	11559.9	199427+04	195571+C3	221.73	221.73	30728+03	298.504		
11750	11755.5	191958+04	188246+03	221.95	221.95	29546+03	298.659		
12000	12005.2	184688+04	181117+C3	222.15	222.15	28402+03	298.793		
12250	12254.8	177803+C04	174365+03	222.31	222.31	27324+03	298.898		
12500	12504.4	171112+C04	167794+C3	222.45	222.45	26278+03	298.990		
12750	12754.0	164621+04	161448+03	222.56	222.56	25271+03	299.064		
13000	13003.6	158411+04	155348+C3	222.64	222.64	24308+03	299.117		
13250	13253.1	152545+04	149595+C3	222.68	222.68	23404+03	299.143		
13500	13502.6	146841+04	144022+C3	222.70	222.70	22526+03	299.159		
13750	13752.2	141320+04	138598+C3	222.70	222.70	21680+03	299.162		
14000	14011.6	136022+04	133392+C3	222.69	222.69	20868+03	299.152		
14250	14251.1	130917+04	128385+03	222.66	222.66	20687+C3	299.133		
14500	14501.6	126009+04	123572+.3	222.57	222.57	19341+C3	299.074		
14750	14750.0	121202+04	118947+C3	222.49	222.49	18625+03	299.017		
15000	14999.4	116761+04	114503+C3	222.43	222.43	17933+C3	298.980		
15250	15248.8	112229+04	110059+C3	222.33	222.38	17242+C3	298.942		
15500	15498.2	108077+04	105938+C3	222.39	222.39	16595+C3	298.952		
15750	15747.5	103994+04	101983+C3	222.44	222.44	15971+03	298.988		

## (CONTINUED) IRIG - RANGE REFERENCE ATMOSPHERE, OCTOBER TABLE I.10

STATION		ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES		
			LATITUDE	LONGITUDE					
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W	UNITS: SEE COLUMN HEADINGS				
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
16000	15996.9	10 <sup>6</sup> 127404	981914+02	222.60	222.60	15367+03	299.395		
16250	16246.5	964251+03	945607+02	222.75	222.75	14789+03	299.192		
16500	16495.5	927226+03	909300+02	222.89	222.89	14212+03	299.288		
16750	16744.8	892724+03	875463+02	222.95	222.95	13679+03	299.329		
17000	16994.4	859826+03	843211+02	222.94	222.94	13176+03	299.323		
17250	17243.3	826948+03	810959+02	222.93	222.93	12672+03	299.316		
17500	17492.5	786258+03	780901+02	222.74	222.74	12213+03	299.189		
17750	17741.7	765648+03	750844+02	222.55	222.55	11753+03	299.062		
18000	17990.8	737317+03	723061+02	222.35	222.35	11329+03	298.922		
18250	18249.0	711351+03	696617+02	222.16	222.16	10973+03	298.800		
18500	18489.1	683386+03	670173+02	221.98	221.98	10517+03	298.677		
18750	18738.3	658259+03	645532+02	221.83	221.83	10137+03	298.577		
19000	18987.4	633123+03	620891+02	221.69	221.69	97570+02	298.478		
19250	19236.4	6099C8+03	598115+02	221.59	221.59	94030+02	298.415		
19500	19485.5	586682+03	575339+02	221.50	221.50	90487+02	298.353		
19750	19734.6	563457+03	552562+02	221.41	221.41	86941+02	298.291		
20000	19983.6	542764+03	532270+02	221.24	221.24	83814+02	298.174		
20250	20232.6	522072+03	511977+02	221.06	221.06	80682+02	298.058		
20500	20481.6	503146+03	493319+02	220.77	220.77	77843+02	297.863		
20750	20730.5	484021+03	474662+02	220.48	220.48	74997+02	297.668		
21000	2.979.5	464954+03	456004+02	220.20	220.20	72143+02	297.473		
21250	21229.4	448034+03	439371+02	220.04	220.04	69562+02	297.366		
21500	21477.3	431073+03	422738+02	219.98	219.98	66977+02	297.258		
21750	21726.2	414113+03	4061C6+02	219.72	219.72	64389+02	297.150		
22000	21975.1	399135+03	391418+02	219.80	219.80	62037+02	297.295		
22250	22223.9	384158+03	376730+02	219.88	219.88	59687+02	297.260		
22500	22472.7	369187+03	362142+02	219.96	219.96	57339+02	297.315		
22750	22721.5	356024+03	349140+02	219.94	219.94	55301+02	297.299		
23000	22970.3	3426c7+03	336238+02	219.92	219.92	53263+02	297.284		
23250	23219.1	329711+03	323236+02	219.89	219.89	51225+02	297.268		
23500	23467.8	316254+03	310434+02	219.87	219.87	49186+02	297.252		
23750	23716.6	305352+03	299481+02	219.77	219.77	47472+02	297.189		
24000	23965.3	294229+03	288540+02	219.68	219.68	45756+02	297.125		
24250	24214.1	283067+03	277594+02	219.59	219.59	44039+02	297.061		
24500	24462.7	271914+03	266147+02	219.49	219.49	42321+02	296.998		
24750	24711.3	237424+03	255101+02	219.40	219.40	40601+02	296.934		
25000	24959.9	2317c9+03	246842+02	219.44	219.44	39187+02	296.963		
25250	25238.6	242675+03	2379c4+02	219.49	219.49	37773+02	296.993		
25500	25457.1	232643+03	229125+02	219.53	219.53	36360+02	297.022		
25750	2575.7	224610+03	220267+02	219.57	219.57	34947+02	297.051		
26000	25954.3	215777+03	2114L9+02	219.41	219.41	33535+02	297.080		
26250	26212.8	206544+03	202550+02	219.56	219.56	3124+02	297.109		
26500	26451.3	199619+03	195760+02	219.71	219.71	31039+02	297.144		
26750	26699.8	192665+03	188969+02	219.76	219.76	29956+02	297.178		
27000	26948.3	185771+03	182179+02	219.81	219.81	28873+02	297.213		
27250	27196.8	178046+03	175386+02	219.86	219.86	27796+02	297.248		
27500	27445.2	171922+03	168525+02	219.91	219.91	267C8+02	297.202		
27750	27733.6	154997+03	161c7+02	219.96	219.96	25626+02	297.317		
28000	27942.0	158073+03	155C17+02	220.02	220.02	24545+02	297.351		
28250	28190.4	152072+03	150112+02	219.87	219.87	23784+02	297.255		
28500	28438.8	142070+03	145208+02	219.73	219.73	23022+02	297.158		
28750	28687.1	142069+03	140303+02	219.59	219.59	22259+02	297.061		
29000	28935.4	132068+03	125358+02	219.44	219.44	21495+02	296.964		
29250	29183.7	133067+03	130494+02	219.30	219.30	2073C+02	296.867		
29500	29432.0	128065+03	125589+02	219.16	219.16	19963+02	296.770		
29750	29680.3	122164+03	120645+02	219.01	219.01	19196+02	296.674		
30000	29924.5	115063+03	115780+02	218.87	218.87	18428+02	296.577		

## IRIG - RANGE REFERENCE ATMOSPHERE, NOVEMBER TABLE I.II

STATION		ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES		
			LATITUDE	LONGITUDE			UNITS: SEE COLUMN HEADINGS		
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W					
ALT. (GEOGRAPHIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
0	0.0	102446+04	100465+04	260.22	260.26	13442+04	323.469	66	1.494
250	25.6	993177+04	973974+03	261.88	262.05	12948+04	324.518	66	1.708
445	446.4	968730+04	950000+03	263.18	263.38	12566+04	325.337	66	1.894
500	501.1	961693+04	943295+03	263.67	263.87	12453+04	325.643	64	1.925
750	751.6	931303+04	913296+03	264.71	264.94	12009+04	326.298	64	2.075
1000	1052.2	901758+04	884323+03	265.21	265.46	11605+04	326.621	67	2.258
1250	1252.6	873159+04	856315+03	265.19	265.47	11237+04	326.628	71	2.389
1500	153.1	845552+04	829233+03	264.80	265.09	10897+04	326.393	74	2.418
1750	1755.6	81851+04	802724+03	263.88	264.17	10586+04	325.826	75	2.390
2000	2004.0	792430+04	777108+03	262.06	262.31	10320+04	324.679	74	1.958
2250	2254.4	76651+04	752224+03	261.38	260.60	10053+04	323.614	73	1.676
2500	2504.8	742124+04	727775+03	259.33	259.54	97685+03	322.958	72	1.526
2750	2755.2	717971+04	704089+03	258.20	258.39	94928+03	322.239	71	1.366
3000	3055.5	694471+04	681444+03	256.67	256.84	92375+03	321.272	68	1.163
3250	3555.9	671762+04	658774+03	255.03	255.17	89938+03	320.227	66	0.973
3500	3506.2	649559+04	637003+03	253.46	253.58	87509+03	319.230	63	0.819
3750	3756.5	627938+04	615977+03	251.88	251.99	85131+03	318.227	61	0.695
4000	4006.7	606911+04	595176+03	250.24	250.33	82826+02	317.177	60	0.590
4250	4257.0	586463+04	575124+03	248.51	248.60	80594+03	316.075	60	0.503
4500	4507.2	566579+04	555624+03	246.73	246.81	78427+03	314.935	60	0.432
4750	4757.5	547243+04	536662+03	244.89	244.96	76321+03	313.755	64	0.385
5000	5057.6	528444+04	518227+03	243.07	243.12	74256+03	312.576	62	0.316
5250	5257.8	509978+04	500117+03	241.26	241.31	72201+03	311.406	56	0.238
5500	5558.0	492208+04	482691+03	239.60	239.62	70174+03	310.318	33	0.121
5750	5758.1	474956+04	465773+03	237.82	237.83	68225+03	309.156	14	0.044
6000	6058.2	458275+04	449346+03	235.86	235.86	66369+03	307.873	5	0.013
6250	6258.3	441749+04	433207+03	233.81	233.81	64546+03	306.533		
6500	6508.4	425852+04	416765+03	231.76	231.76	62781+03	305.181		
6750	6758.5	410336+04	402402+03	229.76	229.76	61012+03	303.867		
7000	7058.5	395385+04	387740+03	227.98	227.98	59249+03	302.685		
7250	7258.5	380737+04	373375+03	226.31	226.31	57476+02	301.572		
7500	7508.5	366659+04	359609+03	224.87	224.87	55712+03	300.611		
7750	7758.5	352969+04	346144+03	223.57	223.57	53936+03	299.744		
8000	8008.5	339632+04	333065+03	222.43	222.43	52165+03	298.970		
8250	8258.4	326742+04	320424+03	221.42	221.42	50412+03	298.302		
8500	8508.3	314503+04	308422+03	220.61	220.61	48704+03	297.749		
8750	8756.2	302568+04	296718+03	219.79	219.79	47031+03	297.196		
9000	9008.1	291055+04	285378+03	219.08	219.08	45384+03	296.717		
9250	9258.2	279847+04	274436+03	218.55	218.55	43745+03	296.360		
9500	9507.8	269124+04	263901+03	218.24	218.24	42126+03	296.147		
9750	9757.6	258777+04	253773+03	218.14	218.14	40528+03	296.079		
10000	10037.4	248859+04	244048+03	218.23	218.23	38958+03	296.144		
10250	10257.2	239345+04	234718+03	218.49	218.49	37424+03	296.319		
10500	10507.1	230227+04	225775+03	218.87	218.87	35935+03	296.579		
10750	10756.7	221495+04	217212+03	219.34	219.34	34498+03	296.896		
11000	11058.5	213141+04	209019+03	219.86	219.86	33120+03	297.243		
11250	11256.2	204766+04	200827+03	220.37	220.37	31748+03	297.589		
11500	11505.9	197059+04	193249+03	220.95	220.95	30469+03	297.981		
11750	11755.5	189554+04	185899+03	221.46	221.46	29242+03	298.324		
12000	12052.2	182442+04	178934+03	221.80	221.80	28104+03	298.557		
12250	12254.8	175563+04	172168+03	222.04	222.04	27013+03	298.714		
12500	12504.4	168974+04	165641+03	222.10	222.18	25972+03	298.810		
12750	12754.0	162627+04	159482+03	222.25	222.25	24998+03	298.860		
13000	13032.6	156518-04	153492+03	222.32	222.32	24051+03	298.905		
13250	13253.1	150616+04	147704+03	222.40	222.40	23137+03	298.956		
13500	1352.6	144935+04	142133+03	222.47	222.47	22257+03	299.077		
13750	13752.2	139476+04	136779+03	222.54	222.54	21412+03	299.053		
14000	14001.6	134221+04	131635+03	222.60	222.60	20601+03	299.094		
14250	14251.1	129151+04	126643+03	222.65	222.65	19623+03	299.128		
14500	14500.6	124347+04	121943+03	222.69	222.69	19376+03	299.153		
14750	14750.0	115654+04	117380+03	222.71	222.71	18360+03	299.170		
15000	14999.4	110224+04	112996+03	222.73	222.73	17674+03	299.178		
15250	15248.8	105921+04	108787+03	222.73	222.73	17015+03	299.179		
15500	15498.2	106812+04	104747+03	222.72	222.72	16384+03	299.173		
15750	15747.5	102693+04	100774+03	222.70	222.70	15753+03	299.161		

## (CONTINUED) IRIG - RANGE REFERENCE ATMOSPHERE, NOVEMBER TABLE I.II

STATION		ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES		
			LATITUDE	LONGITUDE			UNITS: SEE COLUMN HEADINGS		
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSLE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W					
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
16000	15996.9	988533+03	969425+02	222.68	222.68	15166+03	299.148		
16250	16246.2	951844+03	933440+02	222.64	222.64	14606+03	299.120		
16500	16495.5	916726+03	859001+02	222.57	222.57	14071+03	299.075		
16750	16744.8	881608+03	864562+02	222.51	222.51	13536+03	299.031		
17000	16994.0	848752+03	832381+02	222.41	222.41	13038+03	298.965		
17250	17243.3	815976+03	800199+C2	222.31	222.31	12539+03	298.898		
17500	17492.5	785652+03	770501+02	222.16	222.16	12082+03	298.796		
17750	17741.7	756807+03	742174+C2	222.01	222.01	11646+03	298.695		
18000	17990.8	727921+03	713847+C2	221.86	221.86	11209+03	298.594		
18250	18240.0	701002+03	687448+02	221.71	221.71	10801+03	298.497		
18500	18489.1	674063+03	661049+C2	221.57	221.57	10393+03	298.401		
18750	18736.3	649188+03	636636+C2	221.44	221.44	10016+03	298.312		
19000	18987.4	624293+03	612222+C2	221.31	221.31	96373+C2	298.222		
19250	19236.4	601318+03	589692+02	221.19	221.19	92873+02	298.146		
19500	19485.5	578344+03	567161+02	221.08	221.08	89370+02	298.071		
19750	19734.6	557178+03	546405+02	220.95	220.95	86149+02	297.985		
20000	19983.6	53612+C2	525649+02	220.83	220.83	82924+02	297.899		
20250	20232.6	514847+03	504892+C2	220.70	220.70	79696+C2	297.813		
20500	20481.6	495980+03	486390+C2	220.56	220.56	76822+02	297.722		
20750	20730.5	477113+03	467888+C2	220.43	220.43	73945+02	297.631		
21000	20979.5	459874+03	450982+02	220.31	220.31	71313+C2	297.549		
21250	21228.4	442634+03	434076+C2	220.19	220.19	68677+02	297.466		
21500	21477.3	425355+03	417170+G2	220.06	220.06	66039+02	297.384		
21750	21726.2	408155+03	400263+02	219.94	219.94	63398+02	297.301		
22000	21975.1	393367+03	385761+C2	219.79	219.79	61144+02	297.197		
22250	22223.9	378578+03	371258+02	219.63	219.63	58887+02	297.093		
22500	22472.7	363750+03	356756+02	219.48	219.48	56626+02	296.988		
22750	22721.5	35C781+03	343999+02	219.56	219.56	54582+02	297.040		
23000	22970.3	337773+03	331242+02	219.63	219.63	52546+02	297.092		
23250	23219.1	324764+03	318485+02	219.71	219.71	50499+C2	297.144		
23500	23467.8	311755+03	305728+C2	219.79	219.79	48459+02	297.196		
23750	23716.6	30C771+03	294955+02	219.92	219.92	46722+02	297.288		
24000	23965.3	289786+03	284183+02	220.06	220.06	44988+C2	297.380		
24250	24214.0	278801+C2	273411+02	220.19	220.19	43256+02	297.472		
24500	24462.7	267817+03	262638+02	220.33	220.33	41526+02	297.564		
24750	24711.3	256832+03	251866+02	220.47	220.47	39798+02	297.656		
25000	24959.4	247949+03	243155+02	220.31	220.31	38449+02	297.551		
25250	25278.6	239066+03	234444+C2	220.16	220.16	37098+02	297.446		
25500	25457.1	23C1E3+03	225732+02	220.00	220.00	35745+02	297.340		
25750	25705.7	2213C0+03	217021+02	219.84	219.84	34389+02	297.235		
26000	25954.3	213417+03	208310+C2	219.65	219.65	33032+C2	297.130		
26250	26202.8	205259+03	201329+C2	219.38	219.38	31971+02	296.920		
26500	26451.3	1991E0+03	194348+C2	219.07	219.07	30906+02	296.710		
26750	26699.6	19162+C0	187368+C2	218.76	218.76	29836+02	296.500		
27000	26946.3	182943+03	180387+C2	218.45	218.45	28767+02	296.290		
27250	27196.8	176825+03	173406+02	218.14	218.14	276C3+C2	296.080		
27500	27445.2	1697C7+03	166425+02	217.82	217.82	26616+02	295.869		
27750	27693.6	162562+03	159445+C2	217.52	217.52	25536+02	295.659		
28000	27944.0	15547C+03	152464+C2	217.21	217.21	24453+02	295.448		
28250	28192.4	152457+03	147548+02	216.97	216.97	23690+02	295.285		
28500	28438.8	145444+03	142632+02	216.73	216.73	22926+02	295.123		
28750	28687.1	147421+03	137715+C2	216.49	216.49	22161+02	294.960		
29000	28935.4	135418+03	132799+C2	216.25	216.25	21393+C2	294.798		
29250	29183.7	130465+03	127883+C2	216.01	216.01	20624+02	294.635		
29500	29432.0	125392+03	122967+C2	215.78	215.78	19853+02	294.472		
29750	29685.3	12.377+03	118051+C2	215.54	215.54	19386+02	294.309		
30000	29925.5	115366+C2	113135+02	215.30	215.30	18306+02	294.146		

## IRIG - RANGE REFERENCE ATMOSPHERE, DECEMBER TABLE I.12

STATION		ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES		
			LATITUDE	LONGITUDE			UNITS: SEE COLUMN HEADINGS		
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREELY									
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
0	0.0	102625±05	100650±04	254.89	254.98	13751±04	320.109	68	0.989
250	250.6	99431±04	975075±03	256.09	256.20	13259±04	320.672	68	1.495
449	449.5	96720±04	950000±03	257.05	257.17	12869±04	321.481	68	1.187
500	501.1	962256±04	943651±03	257.39	257.51	12766±04	321.695	65	1.172
750	751.6	93913±04	912914±03	258.61	258.75	12291±04	322.462	64	1.282
1000	1002.2	90572±04	883293±03	259.69	259.86	11841±04	323.156	69	1.501
1250	1252.6	871652±04	854749±03	260.25	260.44	11433±04	323.517	73	1.664
1500	1503.1	843466±04	827177±03	261.14	261.34	11069±04	323.453	73	1.657
1750	1753.6	816072±04	802053±03	259.60	259.79	10732±04	323.111	72	1.550
2000	2004.0	789642±04	774375±03	258.50	258.67	10429±04	322.418	68	1.339
2250	2254.4	7639±2±04	749210±03	257.21	257.37	10141±04	321.624	67	1.189
2500	2504.2	73889±04	724604±03	255.85	255.99	92608±03	320.742	68	1.078
2750	2755.2	714471±04	700657±03	254.42	254.55	95889±03	319.839	68	0.964
3000	3005.5	690898±04	677539±03	252.95	253.07	93268±03	318.907	66	0.815
3250	3255.9	667657±04	654944±03	251.43	251.53	90708±03	317.937	63	0.686
3500	3515.2	645432±04	632952±03	249.84	249.92	88227±02	316.918	62	0.589
3750	3755.5	623629±04	611571±03	246.17	246.25	85822±03	315.854	61	0.496
4000	4036.7	602432±04	590784±03	246.45	246.51	83490±03	314.745	57	0.394
4250	4257.0	581823±04	570573±03	244.69	244.74	81217±03	313.613	51	0.305
4500	4557.2	561766±04	550924±03	242.93	242.97	78990±03	312.480	49	0.245
4750	4757.5	542314±04	531828±03	241.21	241.24	76798±03	311.366	53	0.224
5000	5017.6	522355±04	513275±03	239.47	239.50	74659±03	310.238	51	0.184
5250	5257.8	505199±04	495255±03	237.71	237.73	72575±03	309.088	39	0.119
5500	5556.0	487178±04	477758±03	235.94	235.95	70539±03	307.929	22	0.057
5750	5758.1	469665±04	460584±03	234.17	234.18	68517±03	306.772	7	0.015
6000	6018.2	452827±04	444072±03	232.46	232.46	66548±03	305.647	1	0.002
6250	6258.3	436511±04	428071±03	230.78	230.78	64617±03	304.542		
6500	6558.4	420509±04	412376±03	229.12	229.12	62701±03	303.439		
6750	6758.5	405143±04	397310±03	227.47	227.47	60847±03	302.347		
7000	7058.5	390753±04	382550±03	225.85	225.85	59026±03	301.271		
7250	7258.5	375668±04	368644±03	224.36	224.36	57204±03	300.270		
7500	7558.5	361553±04	354563±03	222.95	222.95	55403±03	299.324		
7750	7758.5	347845±04	341119±03	221.64	221.64	53617±03	298.445		
8000	8058.5	334759±04	328321±03	220.59	220.59	51851±03	297.738		
8250	8258.4	322058±04	315831±03	219.69	219.69	50082±03	297.130		
8500	8508.3	309716±04	303726±03	218.98	218.98	48316±03	296.650		
8750	8758.2	297812±04	292054±03	218.43	218.43	46580±03	296.274		
9000	9008.1	286358±04	280620±03	218.09	218.09	44857±03	296.046		
9250	9258.1	275345±04	270211±03	217.98	217.98	43154±03	295.971		
9500	9557.8	264975±04	259852±03	218.15	218.15	41496±03	296.069		
9750	9757.6	254927±04	249998±03	218.50	218.50	39859±03	296.323		
10000	10017.4	244878±04	240143±03	218.84	218.84	38228±03	296.557		
10250	10257.2	235591±04	230954±03	219.36	219.35	36682±03	296.910		
10500	10517.0	226554±04	222213±03	219.86	219.86	35209±03	297.248		
10750	10756.7	21825±04	213609±03	220.31	220.31	33808±03	297.553		
11000	11106.5	209818±04	205762±03	220.70	220.70	32478±03	297.815		
11250	11256.2	218219±04	197919±03	221.5	221.5	31191±03	298.052		
11500	11555.0	194102±04	190349±03	221.35	221.35	29958±03	298.252		
11750	11755.5	184816±04	183214±03	221.55	221.55	28808±03	298.389		
12000	12155.7	179744±04	176269±03	221.72	221.72	27696±03	298.501		
12250	12254.8	173037±04	169692±03	221.80	221.80	26653±03	298.553		
12500	12504.4	166510±04	163291±03	221.87	221.87	25639±02	298.661		
12750	12754.4	161204±04	157156±03	221.94	221.94	24666±02	298.648		
13000	13003.6	154137±04	151157±03	222.02	222.02	23718±03	298.699		
13250	13253.1	148311±04	145444±03	222.13	222.13	22810±02	298.775		
13500	13552.6	142824±04	140063±03	222.24	222.24	21955±02	298.849		
13750	13752.2	137464±04	134637±03	222.34	222.34	21127±03	298.916		
14000	14001.4	132351±04	129791±03	222.42	222.42	20329±03	298.972		
14250	14251.1	127357±04	124933±03	222.48	222.48	19562±02	299.015		
14500	14500.6	122443±04	120070±03	222.55	222.55	18796±02	299.058		
14750	14750.0	117842±04	115573±03	222.58	222.58	18089±02	299.077		
15000	15000.4	113442±04	111248±03	222.59	222.59	17411±02	299.086		
15250	15248.5	10921±04	107694±03	222.59	222.59	16761±02	299.044		
15500	15498.2	105129±04	103106±03	222.57	222.57	16138±02	299.074		
15750	15747.5	101239±04	992813±02	222.55	222.55	15541±02	299.062		

## (CONTINUED) IRIG - RANGE REFERENCE ATMOSPHERE, DECEMBER TABLE I.12

STATION	ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES			
		LATITUDE	LONGITUDE	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE			
FAIRBANKS, ALASKA	134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960				FORT GREELY MISSILE RANGE LAUNCH SITE	
LAUNCH SITE-FORT GREELY	392	63° 59' N	145° 43' W	UNITS: SEE COLUMN HEADINGS					
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
16000	15.96.9	973382+03	954561+02	222.54	222.54	14943+03	299.650		
16250	16.24.2	937062+03	918544+02	222.50	222.50	14388+03	299.625		
16500	16.495.5	902344+03	884897+02	222.45	222.45	13858+03	296.992		
16750	16.744.8	867626+03	850850+02	222.40	222.40	13328+03	298.959		
17000	16.994.0	835383+03	819231+02	222.34	222.34	12836+03	298.917		
17500	17.243.3	804552+03	789036+02	222.25	222.25	12368+03	298.855		
17750	17.492.5	77382C+03	758641+02	222.16	222.16	11960+03	298.794		
18000	17.741.7	74513C+03	730723+C2	222.09	222.08	11462+03	298.744		
18250	17.990.8	71e459+03	7e2606+C2	222.01	222.01	11025+03	298.694		
18500	18.240.0	6e5974+03	676634+C2	221.97	221.97	10619+C3	298.670		
18750	18.49.1	663460+03	650662+C2	221.94	221.94	10213+03	298.645		
19000	18.738.3	630042+03	626686+C2	221.93	221.93	98371+C2	298.644		
19250	1e937.4	614553+03	6e2710+C2	221.93	221.93	94008+02	298.642		
19500	19236.4	592038+03	580591+C2	221.96	221.96	91124+02	298.662		
19750	19425.5	569484+03	558473+C2	221.99	221.99	87641+C2	298.682		
19750	19734.6	548713+03	538104+C2	222.01	222.01	84438+02	298.694		
20000	19983.6	527943+03	517735+C2	222.02	222.02	81235+02	298.706		
20250	20232.6	508661+03	499023+C2	221.96	221.96	78323+02	298.661		
20500	20431.6	48978C+03	480311+C2	221.89	221.89	75409+02	298.616		
20750	20731.5	47e659+03	461598+C2	221.82	221.82	72493+02	298.571		
21000	20979.5	452654+03	444922+C2	221.88	221.88	69655+02	298.610		
21250	21226.4	43665C+03	428246+C2	221.94	221.94	67219+02	298.650		
21500	21477.2	419555+03	411570+C2	222.00	222.00	64585+02	298.689		
21750	21726.2	404717+C3	396892+C2	222.40	222.40	62169+C2	298.760		
22000	21975.1	38975C+03	382214+C2	222.81	222.81	59761+02	299.230		
22250	22223.9	374782+03	367536+C2	223.21	223.21	57362+02	299.511		
22500	22472.7	358815+03	352858+C2	223.61	223.61	54972+02	299.771		
22750	22721.5	347099+03	340388+C2	223.28	223.28	53109+02	299.548		
23000	22970.3	334383+03	327918+C2	222.95	222.95	51246+02	299.324		
23250	23219.1	321667+03	315448+C2	222.61	222.61	49365+02	299.101		
23500	23467.6	308951+03	302978+C2	222.28	222.28	47484+02	298.877		
23750	23716.6	29810C+03	292336+C2	221.71	221.71	45933+02	298.496		
24000	23965.3	287243+03	281694+C2	221.15	221.15	44375+02	298.115		
24250	24214.1	27636e+03	27152+C2	220.58	220.58	42806+02	297.733		
24500	24462.7	265544+03	268410+C2	220.01	220.01	41233+02	297.350		
24750	24711.3	254446+03	251480+C2	220.22	220.22	39783+C2	297.489		
25000	24959.4	247348+03	242566+C2	220.43	220.43	38336+02	297.629		
25250	2520.6	23825+C3	233644+C2	221.63	221.63	36891+02	297.768		
25500	25457.1	229152+03	224722+C2	220.84	220.84	35449+C2	297.937		
25750	25757.5	221544+03	215799+C2	221.04	221.04	34C10+C2	298.046		
26000	26954.3	210956+03	206877+C2	221.25	221.25	32574+02	298.185		
26250	26221.8	204044+03	200560+C2	221.75	221.75	31430+02	298.519		
26500	26451.3	197053+03	193243+C2	222.24	222.24	30291+C2	298.852		
26750	26699.8	19'1 1+C3	186425+C2	222.74	222.74	29157+C2	299.186		
27000	26948.3	183149+C3	1796C8+C2	223.23	223.23	28029+C2	299.518		
27250	27196.8	176159+03	172791+C2	223.73	223.73	26905+C2	299.851		
27500	27445.2	169246+C3	165974+C2	224.23	224.23	25786+C2	300.183		
27750	27693.6	167204+03	159156+C2	224.72	224.72	24673+C2	300.515		
28000	27942.1	155343+03	152339+C2	225.22	225.22	23564+C2	300.846		
28250	2819.4	157514+C3	147674+C2	224.99	224.99	22855+C2	300.692		
28500	28438.8	145666+03	142869+C2	224.75	224.75	22145+C2	300.537		
28750	28687.1	147057+03	138134+C2	224.52	224.52	21433+C2	300.382		
29000	28935.4	136028+C3	133398+C2	224.29	224.29	20719+C2	300.227		
29250	29183.7	131200+C3	128663+C2	224.06	224.06	20004+C2	300.372		
29500	29432.0	12637+C3	123928+C2	223.83	223.83	19288+C2	299.917		
29750	29650.3	121543+03	119193+C2	223.60	223.60	18570+C2	299.762		
30000	29925.5	116714+03	114457+C2	223.37	223.37	17851+C2	299.607		

## IRIG - RANGE REFERENCE ATMOSPHERE, ANNUAL

## TABLE I.13

STATION		ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES		
			LATITUDE	LONGITUDE			UNITS: SEE COLUMN HEADINGS		
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W					
ALT. (GEOMETRIC)	HEIGHT (GEOPOTENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgf/m <sup>2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
0	0.0	102751+05	100804+04	274.93	275.38	12752+04	332.666	61	4.306
250	250.6	99763+04	978393+03	273.74	274.16	12432+04	331.930	61	3.952
489	490.5	96873+04	950000+03	272.60	273.00	12123+04	331.224	61	3.638
500	501.1	96745+04	948747+03	272.29	272.67	12121+04	331.026	61	3.499
750	751.6	937662+04	919532+03	271.51	271.7	11763+04	330.538	59	3.224
1000	1002.2	908451+04	890686+03	270.71	271.16	11450+04	330.148	59	3.018
1250	1252.6	887121+04	863192+03	269.85	270.19	11040+04	329.516	59	2.858
1500	153.3	852776+04	836286+03	268.77	269.10	10826+04	328.850	60	2.658
1750	1753.6	826105+04	810122+03	267.49	267.80	10539+04	328.157	60	2.437
2000	2004.4	799594+04	784525+03	266.08	266.36	10261+04	327.175	61	2.214
2250	2254.4	774715+04	759735+03	264.57	264.84	99936+03	326.236	62	2.003
2500	2504.8	749978+04	735477+03	263.08	263.33	97300+03	325.305	62	1.819
2750	2755.2	725877+04	711842+03	261.57	261.80	94723+03	324.359	64	1.636
3000	3005.5	702580+04	688996+03	259.99	260.19	92249+03	323.363	64	1.434
3250	3255.9	679790+04	666464+03	258.39	258.58	89814+03	322.357	63	1.244
3500	3506.2	657524+04	644870+03	256.82	256.98	87420+03	321.361	62	1.072
3750	3756.5	635980+04	623683+03	255.27	255.41	85068+03	320.377	61	0.922
4000	406.7	614971+04	603081+03	253.71	253.84	82767+03	319.390	60	0.792
4250	4257.1	596544+04	583049+03	252.15	252.26	80519+03	318.395	59	0.683
4500	4537.2	574685+04	563573+03	251.55	251.64	78330+03	317.375	58	0.581
4750	4757.5	555377+04	544639+03	248.89	249.97	76208+03	316.313	55	0.479
5000	517.6	536617+04	526231+03	247.19	247.26	74141+03	315.224	52	0.390
5250	5257.8	518365+04	508362+03	245.49	245.55	72119+03	314.133	50	0.322
5500	5528.0	514484+04	496772+03	243.87	243.92	70092+03	313.089	52	0.284
5750	5758.1	483207+04	473864+03	242.19	242.23	69148+03	312.05	52	0.246
6000	6008.2	466467+04	457448+03	240.33	240.37	66298+03	310.801	48	0.187
6250	6258.3	450.23+04	441321+03	238.24	238.26	64526+03	309.436	36	0.115
6500	6508.4	434162+04	425767+03	236.76	236.87	62831+03	308.038	20	0.053
6750	6758.5	418592+04	413498+03	233.98	233.98	61119+03	306.640		
7000	7008.5	402611+04	395807+03	232.32	232.32	59352+03	305.553		
7250	7258.5	386937+04	381417+03	231.82	231.82	57567+03	304.562		
7500	7508.5	374967+04	367615+03	229.31	229.31	55849+03	303.565		
7750	7758.5	361069+04	354117+03	227.73	227.73	54169+03	302.519		
8000	8078.5	347661+04	340958+03	225.84	225.84	52595+03	301.260		
8250	8258.4	334846+04	328372+03	224.72	224.72	51064+03	300.047		
8500	8508.3	322286+04	316555+03	222.40	222.47	49557+03	298.957		
8750	8758.2	311178+04	304892+03	221.75	221.85	47922+03	298.049		
9000	9078.1	292267+04	292500+03	220.12	220.12	46292+03	297.420		
9250	9258.0	258777+04	251330+03	219.52	219.52	44647+03	297.014		
9500	9517.8	275912+04	270577+03	219.18	219.18	43005+03	296.798		
9750	9757.6	265367+04	260236+03	219.07	219.07	41383+03	296.712		
10000	10077.4	255233+04	250296+03	219.14	219.14	39790+03	296.752		
10250	10257.2	245498+04	240751+03	219.21	219.21	36260+03	296.809		
10500	10577.1	236152+04	231586+03	219.47	219.47	36760+03	296.984		
10750	10750.7	227190+04	222757+03	219.89	219.89	35297+03	297.269		
11000	11076.5	218606+04	214379+03	220.44	220.44	33879+03	297.637		
11250	11256.2	210393+04	206325+03	221.06	221.06	32515+03	298.053		
11500	11575.9	202394+04	198811+03	221.75	221.75	31181+03	298.523		
11750	11755.5	194678+04	190914+03	222.45	222.45	29698+03	298.992		
12000	12005.2	187425+04	183801+03	223.00	223.00	29713+03	299.360		
12250	12254.6	183373+04	176885+03	223.44	223.44	27576+03	299.656		
12500	12504.4	173576+04	170220+03	223.70	223.70	26509+03	299.827		
12750	12754.0	167161+04	163929+03	223.80	223.80	25518+03	299.894		
13000	13003.6	167917+04	157806+03	223.96	223.96	24557+03	299.939		
13250	13253.1	154885+04	151891+03	223.90	223.90	23633+03	299.963		
13500	13502.6	149080+04	146197+03	223.93	223.93	22744+03	299.934		
13750	13752.2	143499+04	140725+03	223.95	223.95	21891+03	299.997		
14000	14071.6	136125+04	135464+03	223.96	223.96	21071+03	300.004		
14250	14251.1	132974+04	130405+03	223.96	223.96	20264+03	300.006		
14500	14501.6	129015+04	125540+03	223.96	223.96	19528+03	300.005		
14750	14750.0	123244+04	120861+03	223.95	223.95	18801+03	300.000		
15000	14999.4	118657+04	116363+03	223.95	223.95	18101+03	299.996		
15250	15248.5	114248+04	112039+03	223.94	223.94	17429+03	299.993		
15500	15492.6	110102+04	107885+03	223.94	223.94	16783+03	299.993		
15750	15747.5	105947+04	103098+03	223.95	223.95	16162+03	299.996		

## (CONTINUED) IRIG-RANGE REFERENCE ATMOSPHERE, ANNUAL TABLE I.13

STATION		ELEVATION (MSL) meters	LOCATION		PERIOD OF DATA		THERMODYNAMIC QUANTITIES		
			LATITUDE	LONGITUDE			FORT GREELY MISSILE RANGE LAUNCH SITE		
FAIRBANKS, ALASKA		134	64° 49' N	147° 52' W	OCT 1948 TO DEC 1960		FORT GREELY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREELY		392	63° 59' N	145° 43' W	UNITS: SEE COLUMN HEADINGS				
ALT. (GEOMETRIC)	HEIGHT (GEOPOENTIAL)	PRESSURE	PRESSURE	TEMPERATURE	VIRTUAL TEMPERATURE	DENSITY	SPEED OF SOUND	RELATIVE HUMIDITY	VAPOR PRESSURE
meters	meters	kgfm <sup>-2</sup>	mb	degrees K	degrees K	g m <sup>-3</sup>	m sec <sup>-1</sup>	percent	mb
16000	15996.9	1C2047+01	1C0074+03	223.96	223.96	15567+03	300.003		
16250	16246.2	981468+03	962491+02	223.97	223.97	14971+03	300.011		
16500	16495.5	945031+03	926759+02	223.98	223.98	14414+03	300.020		
16750	16744.8	910265+03	892685+02	223.99	223.99	13884+03	300.026		
17000	16994.0	875540+03	858611+02	224.01	224.01	13353+03	300.036		
17250	17243.3	8432E0+03	826896+02	224.01	224.01	12859+03	300.041		
17500	17492.5	812411+03	7967C3+02	224.03	224.03	12389+02	300.051		
17750	17741.7	781622+03	766509+02	224.04	224.04	11919+03	300.061		
18000	17990.6	752923+03	738365+02	224.05	224.05	11481+02	300.066		
18250	18240.0	724224+03	7102L1+02	224.06	224.06	11043+02	300.071		
18500	18489.1	697692+03	6842C2+02	224.06	224.06	10636+03	300.068		
18750	18738.3	67116C+03	658183+02	224.05	224.05	10234+03	300.056		
19000	18987.4	646666+03	634163+02	224.04	224.04	98607+02	300.060		
19250	19236.4	622173+03	610143+02	224.03	224.03	94876+02	300.054		
19500	19485.5	599573+03	587980+02	224.02	224.02	91434+02	300.047		
19750	19734.6	576974+03	565818+02	224.01	224.01	87592+02	300.039		
20000	19983.6	556158+03	545405+02	224.03	224.03	84812+02	300.049		
20250	20232.6	535343+03	524992+02	224.04	224.04	81632+02	300.059		
20500	20481.6	514528+03	50458C+02	224.06	224.06	78453+02	300.073		
20750	20730.5	495987+03	486397+02	224.12	224.12	75806+02	300.110		
21000	20979.5	477446+03	468214+02	224.18	224.18	72760+02	300.150		
21250	21228.4	4587C5+03	450032+02	224.24	224.24	69915+02	300.191		
21500	21477.3	4425C0+03	433944+02	224.30	224.30	67397+02	300.234		
21750	21726.2	426055+03	417857+02	224.37	224.37	64879+02	300.278		
22000	21975.1	409650+03	401769+02	224.43	224.43	62363+02	300.321		
22250	22223.9	3951EC+03	387539+02	224.50	224.50	60138+02	300.363		
22500	22472.7	382669+03	3733C9+02	224.56	224.56	57913+02	300.405		
22750	22721.5	366158+03	359679+02	224.62	224.62	55690+02	300.447		
23000	22970.3	3533E7+03	346554+02	224.70	224.70	53729+02	300.499		
23250	23219.1	342615+03	334030+02	224.78	224.78	51769+02	300.532		
23500	23467.8	327844+03	321505+02	224.86	224.86	49811+02	300.604		
23750	23716.5	315072+03	3028eC+02	224.93	224.93	47854+02	300.656		
24000	23965.2	304240+03	298358+02	225.04	225.04	46187+02	300.726		
24250	24214.1	2924C8+03	287735+02	225.14	225.14	44522+02	300.795		
24500	24462.7	282576+03	277112+02	225.25	225.25	42859+02	300.864		
24750	24711.3	271744+03	266489+02	225.35	225.35	41197+02	300.934		
25000	24959.9	267911+03	2558e7+02	225.45	225.45	39536+02	301.003		
25250	25208.4	252134+03	247259+02	225.59	225.59	38154+02	301.091		
25500	25457.1	243356+03	23865C+02	225.72	225.72	36833+02	301.179		
25750	25705.7	234578+03	230424+02	225.85	225.85	35484+02	301.257		
26000	25954.3	2258C0+03	221434+02	225.98	225.98	34136+02	301.355		
26250	26202.8	217022+03	212826+02	226.11	226.11	32790+02	301.444		
26500	26451.3	202244+03	204218+02	226.25	226.25	31445+02	301.532		
26750	26699.8	201466+03	197591+02	226.39	226.39	30405+02	301.626		
27000	26948.3	19729+03	190964+02	226.53	226.53	29368+02	301.720		
27250	27196.8	1971+03	184336+02	226.67	226.67	28331+02	301.814		
27500	27445.2	181213+03	177729+02	226.81	226.81	27295+02	301.908		
27750	27693.5	174455+03	171082+02	226.95	226.95	26261+02	302.012		
28000	27942.0	167657+03	164455+02	227.09	227.09	25228+02	302.096		
28250	28170.4	160939+03	157826+02	227.23	227.23	24194+02	302.159		
28500	28435.8	154182+03	151261+02	227.37	227.37	23156+02	302.283		
28750	28687.1	143473+03	146592+02	227.50	227.50	22446+02	302.365		
29000	28935.4	144763+03	141954+02	227.62	227.62	21727+02	302.446		
29250	29183.7	142054+03	137346+02	227.74	227.74	21009+02	302.527		
29500	29432.0	135345+03	132729+02	227.86	227.86	20292+02	302.598		
29750	29680.3	136356+03	128110+02	227.99	227.99	19576+02	302.659		
30000	29928.5	125927+03	123492+02	228.11	228.11	18860+02	302.770		

IRIG RANGE REFERENCE ATMOSPHERE, JANUARY TABLE III.1

STATION			ELEVATION MSL (meters)			LOCATION		PERIOD OF DATA			SCALAR WINDS						
LAUNCH SITE-FORT GREENLY			134			64° 49' N 147° 52' W		JAN 1956 TO JAN 1961			FORT GREELY MISSILE RANGE LAUNCH SITE						
ALT. (km)	NO.	MIN. DIR.	OBS.	DIR.	(deg)	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0	MAX DIR. SPEED (deg)
SFC	692	+0.0	+0.0	+0.1	+0.5	+1.1	+2.3	+4.1	+6.3	+9.0	+11.1	+12.5	+14.1	+14.2	+14.2	+9.0	+9.0
0.5	667	+0.0	+0.1	+0.5	+1.1	+1.0	+2.5	+4.0	+6.8	+10.5	+14.0	+16.2	+18.5	+19.9	+25.0	+25.0	+27.0
1.0	648	+0.0	+0.1	+0.1	+0.8	+1.1	+2.5	+4.6	+7.7	+11.5	+15.7	+18.9	+21.8	+19.9	+34.0	+34.0	+27.5
1.5	636	+0.0	+0.0	+0.2	+1.1	+1.7	+2.8	+5.6	+7.9	+11.9	+16.1	+18.9	+23.6	+23.6	+31.0	+31.0	+11.7
2.0	603	+0.0	+0.2	+1.1	+1.7	+2.2	+2.9	+4.7	+7.3	+12.5	+16.5	+19.4	+22.7	+24.9	+34.0	+34.0	+11.1
2.5	583	+0.0	+0.4	+1.4	+2.2	+2.2	+2.9	+4.7	+7.3	+12.5	+16.5	+19.4	+22.7	+25.2	+30.0	+30.0	+7.8
3.0	576	+0.0	+0.6	+1.3	+2.2	+3.3	+3.7	+5.4	+9.1	+13.2	+17.8	+20.6	+23.9	+27.2	+38.0	+38.0	+4.5
4.0	519	+0.0	+1.1	+1.7	+2.6	+3.7	+6.1	+9.2	+14.0	+19.0	+21.7	+24.2	+27.2	+33.0	+33.0	+33.0	+24.5
5.0	476	+1.0	+2.0	+3.5	+4.8	+7.1	+12.1	+18.1	+23.6	+27.4	+31.0	+36.6	+42.2	+42.2	+42.2	+42.2	+24.0
6.0	443	+1.0	+1.0	+1.7	+2.7	+5.0	+8.6	+14.7	+22.2	+28.8	+34.2	+37.4	+42.1	+42.1	+42.1	+42.1	+25.7
7.0	429	+0.0	+1.9	+2.0	+3.3	+4.8	+9.6	+16.8	+25.4	+34.4	+39.2	+44.2	+46.8	+46.8	+46.8	+46.8	+35.6
8.0	393	+0.0	+1.3	+2.5	+4.5	+6.0	+10.6	+18.5	+27.2	+36.5	+42.6	+49.0	+55.5	+55.5	+55.5	+55.5	+64.0
9.0	370	+2.0	+2.0	+4.3	+6.2	+11.0	+18.1	+29.4	+39.2	+45.3	+53.5	+58.3	+68.0	+68.0	+68.0	+68.0	+182
10.0	356	+2.0	+3.4	+5.7	+10.0	+16.5	+26.9	+40.0	+51.0	+60.4	+71.0	+80.4	+90.4	+90.4	+90.4	+90.4	+180
11.0	314	+2.0	+2.6	+4.4	+5.5	+9.3	+15.5	+26.9	+38.5	+46.3	+56.1	+61.1	+66.0	+66.0	+66.0	+66.0	+245
12.0	325	+1.0	114	+2.2	+2.0	+4.3	+5.0	+8.8	+15.5	+26.9	+36.3	+43.1	+47.2	+54.7	+54.7	+70.0	+241
13.0	309	+0.0	+1.5	+3.0	+4.1	+5.8	+8.8	+14.8	+24.7	+35.0	+40.0	+44.3	+45.9	+52.0	+52.0	+52.0	+272
14.0	294	+0.0	+1.9	+3.9	+4.9	+6.4	+8.7	+14.3	+25.5	+32.6	+39.0	+43.2	+46.5	+57.0	+57.0	+57.0	+250
15.0	287	+0.0	+1.0	+3.5	+5.0	+6.2	+9.1	+15.2	+25.1	+34.4	+41.3	+44.2	+46.5	+46.5	+46.5	+46.5	+290
16.0	276	+0.0	+1.7	+3.0	+5.0	+6.5	+9.4	+18.0	+27.1	+37.1	+42.0	+46.7	+50.9	+53.6	+53.6	+53.6	+310
17.0	269	+0.0	+1.6	+2.4	+4.4	+6.1	+9.0	+18.0	+29.9	+42.0	+57.2	+61.7	+69.0	+73.2	+73.2	+73.2	+293
18.0	256	+2.0	+1.5	+2.9	+4.4	+5.9	+9.2	+19.0	+31.5	+43.0	+48.2	+53.1	+59.4	+76.0	+76.0	+76.0	+300
19.0	235	+2.0	+2.6	+4.3	+5.5	+10.3	+19.0	+33.0	+46.7	+50.8	+56.6	+62.3	+62.3	+69.0	+69.0	+69.0	+290
20.0	221	+2.0	+3.0	+4.3	+5.6	+10.2	+20.7	+36.9	+48.6	+52.9	+59.9	+64.7	+71.0	+80.3	+80.3	+80.3	+290
21.0	205	+1.0	264	+1.5	+2.8	+5.1	+10.4	+19.9	+39.7	+50.6	+58.7	+62.3	+69.2	+77.1	+77.1	+77.1	+300
22.0	189	+1.0	310	+1.4	+2.4	+5.9	+10.3	+23.1	+42.2	+52.0	+60.7	+64.6	+73.6	+87.0	+87.0	+87.0	+295
23.0	175	+1.0	2H	+1.7	+2.6	+3.6	+6.0	+10.7	+25.5	+47.1	+57.2	+61.7	+69.0	+73.2	+77.0	+77.0	+285
24.0	144	+2.0	+2.6	+3.5	+5.9	+7.5	+10.0	+22.0	+49.4	+59.1	+65.0	+68.7	+75.5	+80.0	+80.0	+80.0	+313
25.0	118	+0.0	+0.1	+1.3	+2.6	+5.3	+9.6	+26.5	+52.2	+64.0	+71.1	+80.3	+83.8	+86.0	+86.0	+86.0	+280
26.0	83	+0.0	+0.2	+1.2	+2.1	+4.4	+9.7	+20.2	+54.0	+68.3	+73.9	+79.5	+83.7	+87.1	+87.1	+87.1	+292
27.0	55	+0.0	+3.0	+0.2	+1.7	+2.8	+7.7	+27.5	+49.2	+69.5	+74.2	+79.0	+79.5	+79.5	+79.5	+79.5	+303
28.0	37	+3.0	+277	+7.4	+8.8	+3.5	+11.6	+34.5	+49.9	+53.9	+77.0	+77.7	+86.3	+86.7	+87.0	+87.0	+295
29.0	29	+4.0	+226	+6.0	+6.0	+16.5	+13.6	+37.5	+53.9	+77.0	+77.7	+86.3	+86.7	+87.0	+87.0	+87.0	+293
30.0	22	+4.0	+226	+6.0	+6.0	+8.0	+16.5	+42.0	+53.7	+69.7	+88.8	+96.4	+96.7	+97.0	+97.0	+97.0	+293

IRIG RANGE REFERENCE ATMOSPHERE, FEBRUARY TABLE III.2

STATION				ELEVATION MSL (meters)			LOCATION			PERIOD OF DATA			SCALAR WINDS				
FAIRBANKS, ALASKA				134			64° 49' N 147° 52' W			JAN 1956 TO JAN 1961			FORT GREELY MISSILE RANGE LAUNCH SITE				
LAUNCH SITE-FORT GREELY				392			63° 59' N 145° 43' W			CUMULATIVE FREQUENCY			UNITS: WIND SPEED - m/sec				
ALT. (km)	NO.	MIN. SPEED	DIR. (deg)	1.0	2.28	5.0	100	250	500	750	900	950	97.72	99.0	MAX SPEED		
M	M	M	M												DIR. (deg)		
SFC	566	+0.0	+0.0	+0.0	+0.1	+0.5	+1.1	+2.2	+3.7	+4.6	+6.0	+8.1	+13.0	45			
0.5	554	+0.0	+0.0	+0.0	+1.1	+2.7	+3.9	+6.3	+9.0	+10.9	+13.2	+15.4	+19.0				
1.0	538	+1.0	+1.0	+1.0	+2.1	+3.7	+6.1	+9.7	+13.0	+16.3	+18.2	+19.8	+21.0				
1.5	511	+1.0	+1.0	+1.0	+2.2	+4.4	+7.2	+11.0	+15.1	+18.4	+20.4	+21.9	+26.0				
2.0	494	+1.0	+1.0	+1.0	+2.3	+4.6	+11.2	+11.9	+16.4	+19.7	+22.9	+26.6	+31.0	85			
2.5	431	+1.0	+1.0	+1.0	+2.4	+5.5	+10.9	+13.2	+17.0	+19.8	+22.8	+26.5	+32.0				
3.0	671	+1.0	+1.0	+1.0	+1.9	+3.0	+5.4	+9.1	+13.8	+17.8	+23.4	+30.2	+42.0				
4.0	620	+0.0	+0.0	+0.7	+1.7	+2.6	+3.6	+6.1	+9.0	+15.6	+20.5	+23.5	+26.8	+36.0	294		
5.0	392	+0.0	+0.9	+0.9	+2.0	+2.7	+7.0	+7.0	+12.1	+24.5	+24.5	+26.0	+28.9	+36.0	224		
6.0	365	+1.0	340	+1.3	+2.0	+3.0	+5.1	+8.6	+13.6	+20.8	+28.7	+31.7	+36.6	+54.0	16		
7.0	326	+1.0	+1.2	+1.9	+3.2	+5.1	+8.5	+15.1	+22.6	+31.0	+37.5	+51.5	+55.7	+77.0	310		
8.0	299	+1.0	+1.0	+1.6	+2.3	+3.2	+5.0	+9.2	+14.7	+22.9	+31.7	+30.5	+55.1	+98.0	314		
9.0	279	+1.0	260	+2.0	+2.3	+3.1	+5.1	+9.1	+13.9	+22.7	+30.5	+30.5	+69.0	+98.0			
10.0	263	+0.0	+0.0	+1.5	+2.2	+3.4	+4.6	+7.9	+12.5	+19.2	+26.1	+30.0	+56.6	+74.0	221		
11.0	255	+1.0	350	+1.2	+1.0	+2.6	+4.0	+7.7	+11.9	+18.0	+28.7	+41.0	+56.8	+74.3	233		
12.0	249	+0.0	+0.0	+1.0	+1.5	+2.4	+3.7	+7.1	+11.2	+16.8	+25.3	+34.5	+55.5	+83.0	306		
13.0	242	+0.0	+0.0	+1.1	+2.0	+3.4	+6.8	+11.3	+17.4	+26.6	+31.4	+36.7	+45.7	+61.0	304		
14.0	237	+0.0	+0.0	+0.7	+1.6	+1.6	+3.3	+6.5	+10.2	+18.2	+26.4	+33.3	+39.6	+62.0	305		
15.0	226	+0.0	+0.0	+0.2	+1.2	+1.9	+4.0	+7.0	+12.0	+18.9	+26.7	+32.2	+45.7	+67.0	267		
16.0	218	+0.0	+0.0	+1.2	+1.0	+2.4	+4.1	+6.9	+11.0	+18.9	+29.1	+32.7	+43.5	+54.0	282		
17.0	208	+0.0	+0.0	+1.2	+1.2	+2.5	+4.0	+6.9	+10.8	+19.4	+29.1	+34.6	+37.6	+50.0	303		
18.0	205	+1.0	150	+1.1	+1.4	+2.2	+3.5	+7.0	+10.4	+19.7	+29.5	+34.6	+39.3	+42.4	+50.0	303	
19.0	196	+1.0	+1.0	+1.3	+2.0	+3.4	+6.4	+10.4	+10.9	+18.5	+27.6	+30.5	+40.6	+46.1	+50.0	302	
20.0	182	+1.2	+1.2	+1.1	+1.6	+2.5	+4.0	+7.0	+11.0	+17.5	+27.1	+32.9	+40.4	+48.0	+52.0	295	
21.0	170	+0.0	+0.3	+0.3	+1.1	+2.0	+3.5	+6.8	+11.5	+18.6	+27.3	+31.5	+40.3	+46.0	+50.0	300	
22.0	158	+2.0	+2.0	+2.0	+2.5	+4.2	+7.6	+11.5	+17.3	+21.0	+36.5	+41.3	+46.4	+52.0	+57.0	300	
23.0	148	+2.0	+2.0	+2.0	+2.1	+2.7	+4.1	+7.2	+12.8	+18.6	+26.7	+33.8	+41.8	+48.5	+52.0	305	
24.0	124	+2.0	+2.0	316	+2.0	+2.3	+3.0	+4.3	+11.3	+14.0	+19.6	+31.8	+36.8	+45.1	+52.7		
25.0	102	+2.0	+2.2	+2.0	+2.4	+3.5	+6.0	+10.5	+14.6	+19.6	+31.8	+35.6	+47.3	+47.9	+63.0	305	
26.0	81	+2.0	+2.0	205	+2.0	+2.8	+3.5	+5.0	+7.8	+15.4	+22.7	+34.6	+40.9	+50.1	+68.1	+70.0	303
27.0	66	+2.0	+2.0	263	+2.0	+2.2	+3.0	+3.5	+6.2	+15.0	+23.0	+34.4	+42.7	+57.7	+78.0	+80.0	303
28.0	45	+1.0	327	+1.0	+2.0	+2.6	+3.5	+5.1	+12.5	+25.5	+36.5	+42.7	+46.6	+49.1	+50.0	+50.0	300
29.0	20	+2.0	+2.0	+2.0	+2.7	+4.6	+5.5	+9.5	+15.0	+36.2	+48.7	+49.9	+58.4	+48.7	+49.0	+52.5	275
30.0	22	+3.0	+3.0	+3.0	+2.7	+3.5	+4.5	+9.5	+15.0	+36.0	+48.7	+49.9	+58.4	+50.7	+59.0	+59.0	269

IRIG RANGE REFERENCE ATMOSPHERE, MARCH

TABLE II.1.3

STATION				ELEVATION MSL (meters)		LOCATION		PERIOD OF DATA		SCALAR WINDS						
FAIRBANKS, ALASKA				134		64° 49' N 147° 52' W		JAN 1956 TO JAN 1961		FORT GREENLY MISSILE RANGE LAUNCH SITE						
LAUNCH SITE-FORT GREENLY				392		63° 59' N 145° 43' W		UNITS: WIND SPEED - m/sec								
ALT (km)	NO. OBS.	MIN. SPEED	DIR. (deg)	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0	MAX SPEED	DIR. (deg)
SFC	611	+0.0	+0.0	+0.0	+0.2	+0.5	+1.1	+1.9	+2.6	+4.0	+5.1	+6.0	+8.0	+12.0	30	
0.5	599	+0.0	+0.0	+0.1	+0.3	+0.6	+1.4	+2.7	+3.6	+5.5	+9.6	+11.5	+13.5	+18.0	270	
1.0	593	+0.0	+0.0	+0.1	+0.3	+0.6	+1.1	+2.1	+3.9	+7.6	+10.9	+12.6	+16.0	+22.0	85	
1.5	581	+1.0	+1.0	+1.1	+1.7	+2.7	+3.3	+5.6	+8.6	+12.3	+15.3	+17.6	+20.1	+29.0	123	
2.0	569	+1.0	+1.0	+1.2	+2.0	+2.6	+3.8	+6.4	+9.9	+12.9	+13.9	+16.7	+19.6	+24.3	74	
2.5	553	+0.0	+0.1	+0.7	+1.4	+2.3	+2.3	+6.2	+10.0	+16.2	+17.3	+17.3	+23.7	+32.0	181	
3.0	542	+0.0	+0.0	+0.3	+1.1	+2.3	+2.3	+4.3	+7.4	+11.4	+15.0	+17.7	+20.4	+22.8	74	
4.0	521	+0.0	+0.4	+1.1	+2.0	+2.8	+4.3	+9.0	+13.4	+17.8	+21.1	+24.4	+26.0	+43.0	320	
5.0	494	+1.0	+1.1	+2.1	+3.4	+6.5	+16.5	+20.2	+21.6	+21.6	+21.6	+27.9	+35.6	+55.0	320	
6.0	469	+0.9	+1.0	+1.6	+2.7	+3.9	+7.2	+12.0	+18.5	+24.0	+27.2	+34.6	+39.6	+55.6	325	
7.0	442	+0.9	+1.0	+2.0	+3.1	+4.6	+7.6	+13.8	+20.4	+28.1	+33.9	+39.3	+45.7	+58.7	318	
8.0	416	+2.2	+2.3	+3.2	+6.5	+7.0	+7.0	+13.6	+21.6	+29.3	+32.1	+37.5	+51.6	+67.0	320	
9.0	387	+1.0	+1.4	+3.0	+6.3	+7.3	+7.3	+12.9	+19.9	+20.0	+33.8	+40.1	+51.1	+74.0	324	
10.0	365	+1.0	+1.4	+2.7	+4.3	+7.0	+7.0	+12.2	+18.5	+25.6	+31.8	+36.6	+43.3	+74.0	327	
11.0	353	+1.0	+1.1	+1.6	+2.9	+4.5	+7.1	+11.3	+18.5	+24.3	+29.3	+38.4	+43.4	+50.0	319	
12.0	334	+2.0	+0.5	+1.2	+1.9	+3.7	+6.5	+11.1	+16.7	+22.9	+26.0	+28.1	+35.6	+42.0	312	
13.0	326	+0.0	+0.6	+1.3	+2.3	+3.6	+6.2	+10.7	+16.4	+22.4	+25.7	+29.2	+33.7	+51.0	250	
14.0	311	+0.0	+1.1	+1.5	+2.3	+3.5	+5.8	+10.4	+15.2	+22.3	+27.4	+30.9	+40.2	+68.0	212	
15.0	297	+0.0	+0.4	+1.1	+1.9	+3.4	+6.0	+10.2	+16.0	+22.7	+25.7	+31.1	+35.0	+38.0	298	
16.0	290	+1.0	139	+1.3	+2.0	+2.6	+3.5	+5.9	+10.1	+15.0	+23.0	+27.1	+30.1	+31.7	235	
17.0	282	+0.0	+0.6	+1.1	+1.9	+3.0	+6.2	+10.0	+16.0	+22.9	+27.4	+31.2	+41.0	+52.0	278	
18.0	274	+0.9	+0.4	+1.1	+2.0	+2.1	+5.3	+9.5	+14.5	+23.3	+27.5	+30.7	+35.1	+45.0	287	
19.0	260	+1.0	+1.1	+1.0	+2.7	+4.9	+6.1	+14.0	+25.5	+28.7	+34.0	+39.4	+47.0	+59.0	298	
20.0	246	+1.0	+1.0	+1.3	+2.1	+2.9	+5.1	+8.5	+16.2	+25.2	+30.1	+33.3	+37.7	+45.0	281	
21.0	232	+0.0	+0.1	+1.0	+2.1	+3.3	+5.0	+8.3	+14.1	+26.6	+33.4	+37.8	+45.6	+49.0	278	
22.0	215	+0.0	+0.9	+2.1	+3.1	+4.8	+9.0	+14.5	+29.2	+37.1	+42.5	+44.9	+52.0	+56.0	278	
23.0	201	+0.0	+0.3	+1.1	+1.7	+2.6	+4.8	+9.7	+14.9	+33.4	+41.3	+44.8	+52.2	+62.0	278	
24.0	172	+2.0	+0.9	+2.0	+2.7	+5.0	+9.4	+10.4	+15.6	+30.8	+41.4	+46.0	+51.7	+60.5	274	
25.0	144	+0.9	+0.6	+2.2	+3.3	+5.0	+9.4	+10.2	+16.7	+36.5	+42.8	+51.7	+60.5	+63.0	274	
26.0	128	+2.0	+2.4	+3.5	+5.7	+5.7	+10.5	+18.7	+39.0	+47.6	+58.0	+58.0	+63.0	+63.0	281	
27.0	95	+4.0	+4.3	+5.0	+7.0	+7.0	+17.0	+32.5	+49.2	+58.0	+60.0	+69.0	+78.0	+81.0	278	
28.0	75	+2.0	347	+2.3	+3.3	+4.6	+6.0	+11.4	+24.1	+42.5	+50.2	+66.2	+67.0	+73.5	325	
29.0	35	+5.0	+5.7	+8.4	+17.2	+33.6	+45.9	+67.5	+52.2	+55.2	+56.0	+56.0	+59.0	+60.0	301	
30.0	14	+3.0	+3.3	+10.5	+31.0	+45.9	+51.5	+52.2	+52.2	+52.2	+52.2	+52.2	+52.2	+53.0	295	

IRIG RANGE REFERENCE ATMOSPHERE, APRIL

TABLE II.1.4

STATION	ELEVATION MSL (meters)			LOCATION			PERIOD OF DATA			SCALAR WINDS		
	ALT (km)	NO. OBS.	MIN. SPEED	DIR. (deg)	LATITUDE	LONGITUDE	JAN 1956 TO JAN 1961	UNITS: WIND SPEED - m/sec	MAX SPEED	DIR. (deg)		
LAUNCH SITE-FORT GREENLY												
FAIRBANKS, ALASKA	134	392	64° 49' N	147° 52' W	63° 59' N	145° 43' W	CUMULATIVE PERCENTAGE FREQUENCY					
			1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72
												99.0
SFC	591	40.0	+0.0	+0.2	+0.3	+1.0	+0.6	+2.3	+3.0	+4.9	+6.0	+7.5
0.5	577	40.0	+0.0	+0.1	+0.3	+1.3	+2.0	+3.3	+5.2	+7.6	+10.9	+12.6
1.0	572	40.0	+0.1	+0.3	+0.8	+1.1	+2.0	+3.1	+5.1	+7.4	+11.3	+13.9
1.5	569	40.0	+0.1	+0.1	+0.5	+1.1	+1.0	+2.0	+4.0	+6.1	+10.4	+12.9
2.0	563	40.0	+0.2	+0.5	+1.1	+1.7	+1.7	+3.0	+7.6	+10.4	+15.2	+19.6
2.5	560	40.0	+0.3	+0.8	+1.3	+2.1	+2.1	+3.2	+9.5	+12.4	+15.0	+19.6
3.0	531	40.0	+0.2	+0.7	+1.3	+2.2	+2.2	+3.1	+6.1	+9.7	+13.5	+17.2
4.0	514	40.0	+0.2	+0.7	+1.4	+2.5	+2.5	+3.0	+6.6	+10.1	+14.6	+17.0
5.0	497	40.0	+0.2	+0.7	+1.0	+1.7	+2.7	+3.5	+7.5	+12.0	+17.0	+21.0
6.0	480	40.0	+0.9	+1.3	+2.1	+3.2	+2.1	+6.1	+10.4	+16.3	+23.1	+30.0
7.0	461	40.0	+1.1	+1.5	+2.4	+3.5	+3.5	+6.6	+11.6	+18.7	+27.6	+35.3
8.0	426	41.0	+1.0	+1.0	+1.0	+2.7	+2.7	+4.0	+7.4	+11.9	+20.9	+32.2
9.0	400	40.0	+0.7	+0.7	+1.5	+2.4	+2.4	+3.0	+7.3	+11.4	+19.7	+21.7
10.0	383	41.0	195	+1.2	+2.3	+3.4	+2.3	+5.5	+9.3	+14.0	+20.2	+26.3
11.0	364	40.0	+0.4	+1.1	+1.6	+2.0	+2.0	+5.1	+9.3	+13.1	+19.0	+25.0
12.0	354	41.0	+1.2	+1.9	+2.7	+4.0	+4.0	+6.6	+10.2	+13.1	+20.9	+27.0
13.0	345	40.0	+0.6	+1.4	+2.3	+4.0	+4.0	+6.0	+7.7	+12.2	+19.1	+23.5
14.0	335	40.0	+0.4	+0.4	+1.1	+1.0	+1.0	+3.2	+6.0	+11.0	+17.2	+22.4
15.0	328	40.0	+1.0	+1.3	+1.9	+3.8	+3.8	+5.4	+9.4	+11.1	+17.9	+29.6
16.0	323	40.0	+0.5	+1.2	+1.0	+3.3	+3.3	+5.4	+9.5	+10.1	+14.9	+29.6
17.0	319	40.0	+0.7	+1.1	+1.6	+2.7	+2.7	+4.9	+8.3	+13.1	+20.5	+35.7
18.0	316	40.0	+0.1	+1.0	+1.5	+2.9	+2.9	+4.7	+7.8	+13.2	+20.9	+32.9
19.0	307	40.0	+0.5	+1.5	+2.9	+4.9	+4.9	+6.9	+13.7	+21.7	+25.7	+39.2
20.0	293	40.0	+1.0	+1.0	+1.0	+2.0	+2.0	+4.7	+6.7	+13.2	+22.3	+32.3
21.0	280	40.0	+0.0	+1.1	+1.7	+2.9	+2.9	+4.1	+7.4	+14.5	+22.0	+32.0
22.0	262	40.0	+0.2	+1.0	+1.0	+1.7	+1.7	+3.2	+5.3	+7.0	+15.4	+22.9
23.0	237	40.0	+0.0	+1.1	+1.5	+2.1	+2.1	+3.4	+6.1	+9.6	+16.0	+21.6
24.0	196	40.0	+1.1	+1.1	+1.5	+2.1	+2.1	+3.0	+6.9	+10.7	+19.1	+27.2
25.0	159	40.0	+0.2	+1.0	+1.0	+1.6	+1.6	+2.3	+5.1	+8.7	+13.6	+20.5
26.0	124	40.0	+0.0	+1.0	+1.0	+1.4	+1.4	+2.1	+4.2	+7.0	+15.0	+22.0
27.0	100	40.0	+0.3	+0.6	+1.3	+2.5	+2.5	+4.5	+7.6	+12.0	+17.6	+24.5
28.0	75	40.0	+0.7	+1.1	+2.3	+5.9	+5.9	+14.7	+20.6	+26.3	+33.2	+39.2
29.0	48	40.0	+0.0	+1.3	+2.4	+6.5	+6.5	+15.0	+22.0	+26.2	+35.9	+40.5
30.0	31	41.0	264	+1.5	+2.5	+5.3	+5.3	+13.5	+25.2	+26.4	+30.4	+30.6

# IRIG RANGE REFERENCE ATMOSPHERE, MAY

TABLE II.1.5

STATION				ELEVATION MSL (meters)				LOCATION				PERIOD OF DATA				SCALAR WINDS			
LAUNCH SITE-FORT GREENLY				63° 59' N				145° 43' W				JAN 1956 TO JAN 1961				FORT GREENLY MISSILE RANGE LAUNCH SITE			
ALT (km)	NO. OBS.	MIN. DIR.	DIR. SPEED (deg)	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0	MAX SPEED (m/sec)	DIR. (deg)			
UNITS: WIND SPEED-m/sec																			
SFC	60.8	+0.0	+0.0	+0.0	+0.0	+0.6	+1.0	+1.5	+2.0	+2.5	+4.0	+5.1	+6.4	+7.2	+7.9	+10.0	60		
0.5	60.2	+0.0	+0.0	+0.0	+0.0	+0.3	+0.9	+1.5	+2.0	+2.7	+4.0	+5.4	+6.4	+8.6	+12.3	+17.0	264		
1.0	59.7	+0.0	+0.0	+0.0	+0.0	+0.5	+1.1	+1.6	+2.0	+2.7	+4.5	+5.9	+6.9	+9.4	+13.1	+20.0	267		
1.5	59.2	+0.0	+0.0	+0.0	+0.0	+0.5	+1.1	+1.6	+2.0	+2.9	+4.6	+5.9	+6.9	+9.9	+13.1	+23.0	270		
2.0	58.1	+0.0	+0.0	+0.0	+0.0	+0.5	+1.1	+1.6	+2.0	+2.9	+4.7	+5.0	+7.7	+10.7	+14.9	+17.3	265		
2.5	56.0	+0.0	+0.0	+0.0	+0.0	+0.6	+1.2	+1.8	+2.0	+2.5	+4.8	+5.4	+8.4	+12.5	+16.8	+19.3	23.0		
4.0	55.0	+0.0	+0.0	+0.0	+0.1	+0.6	+1.2	+2.0	+3.0	+4.0	+6.0	+9.4	+13.3	+16.3	+17.0	+20.2	200		
4.0	52.3	+0.0	+0.0	+0.0	+0.4	+1.0	+1.7	+2.5	+3.6	+4.6	+7.3	+11.2	+15.5	+18.4	+21.0	+22.9	205		
5.0	49.6	+1.0	+1.0	+1.0	+1.2	+1.8	+2.5	+3.6	+4.8	+6.2	+9.0	+12.8	+16.0	+20.3	+25.3	+27.3	307		
6.0	47.6	+1.5	+1.5	+1.5	+1.6	+2.3	+3.3	+4.0	+5.0	+6.0	+9.6	+12.8	+16.3	+20.1	+24.7	+29.7	20		
7.0	44.9	+0.0	+0.0	+0.0	+1.5	+2.5	+3.9	+4.6	+5.6	+6.6	+11.6	+15.2	+21.6	+24.7	+29.5	+34.5	151		
8.0	43.3	+0.0	+0.0	+0.0	+1.0	+2.1	+3.2	+4.2	+5.2	+6.2	+12.1	+17.5	+20.7	+24.7	+30.1	+35.5	40		
9.0	40.8	+1.0	+1.0	+1.3	+2.1	+3.2	+4.2	+5.4	+6.4	+7.5	+13.5	+19.5	+22.3	+29.9	+34.8	+42.0	45.6		
10.0	39.4	+0.0	+0.0	+1.3	+2.1	+3.0	+4.2	+5.2	+6.2	+7.0	+11.8	+19.7	+22.3	+30.5	+37.0	+43.0	50.0		
11.0	37.1	+1.0	+1.0	+1.0	+1.6	+2.3	+3.1	+4.5	+5.2	+6.0	+10.0	+15.2	+23.6	+31.2	+35.9	+39.1	43.0		
12.0	35.1	+0.0	+0.0	+0.0	+0.8	+1.2	+1.9	+2.7	+4.5	+7.9	+12.4	+15.9	+22.6	+27.9	+31.4	+44.0	218		
13.0	34.2	+0.0	+0.0	+0.1	+0.5	+1.1	+1.9	+4.0	+6.7	+10.2	+14.1	+16.7	+21.2	+22.5	+31.2	+41.0	305		
14.0	32.9	+2.0	+2.0	+0.3	+1.2	+2.1	+3.7	+4.2	+5.0	+6.0	+8.6	+12.5	+15.3	+18.4	+20.3	+28.0	214		
15.0	32.2	+0.0	+0.0	+0.2	+1.2	+2.0	+3.0	+4.2	+5.0	+6.0	+7.5	+10.6	+12.9	+15.7	+18.9	+26.0	40		
16.0	31.4	+0.0	+0.0	+0.4	+1.3	+2.0	+3.1	+4.2	+5.1	+6.0	+7.7	+11.8	+14.7	+16.9	+19.4	+34.0	220		
17.0	30.7	+0.0	+0.0	+0.3	+1.1	+2.0	+3.0	+4.2	+5.0	+6.0	+7.7	+11.6	+14.5	+16.9	+19.5	+27.0	305		
18.0	29.5	+0.0	+0.0	+0.3	+0.9	+2.1	+3.0	+4.2	+5.0	+6.0	+8.0	+11.0	+12.1	+14.0	+16.0	+18.0	314		
19.0	28.4	+0.0	+0.0	+0.2	+1.0	+2.0	+3.0	+4.2	+5.0	+6.0	+7.8	+11.5	+14.7	+16.5	+19.7	+21.0	314		
20.0	26.4	+0.0	+0.0	+0.3	+1.2	+2.0	+3.0	+4.2	+5.0	+6.0	+7.5	+10.6	+12.9	+15.7	+18.9	+21.6	314		
21.0	25.6	+0.0	+0.0	+0.2	+1.1	+2.0	+3.0	+4.0	+5.0	+6.0	+7.3	+9.0	+10.4	+11.7	+15.0	+19.0	314		
22.0	24.0	+0.0	+0.0	+0.4	+1.0	+1.5	+2.0	+2.7	+4.0	+5.3	+6.0	+7.0	+7.8	+8.9	+10.5	+14.0	314		
23.0	22.3	+0.0	+0.0	+0.0	+0.5	+1.1	+1.7	+2.7	+4.6	+6.7	+6.7	+8.6	+9.5	+10.4	+12.3	+14.0	95		
24.0	19.7	+0.0	+0.0	+0.0	+0.4	+1.3	+1.3	+3.0	+4.9	+7.3	+9.6	+11.2	+12.7	+14.0	+17.0	+17.0	96		
25.0	17.4	+0.0	+0.0	+0.6	+1.2	+1.9	+3.6	+5.6	+8.7	+11.2	+13.2	+13.2	+16.2	+16.6	+19.5	+21.0	96		
26.0	15.0	+1.0	+1.0	+1.0	+1.3	+1.3	+1.9	+3.7	+6.2	+9.4	+12.3	+13.8	+16.6	+19.5	+21.0	+21.0	95		
27.0	10.9	+0.0	+0.0	+0.0	+0.3	+1.1	+2.3	+4.0	+6.4	+10.1	+12.7	+14.2	+17.2	+17.9	+21.0	+21.0	47		
28.0	8.6	+0.0	+0.0	+0.9	+2.2	+3.1	+4.7	+6.7	+11.1	+14.4	+16.9	+17.6	+19.1	+20.0	+20.0	+20.0	50		
29.0	5.9	+2.0	+2.0	+2.0	+2.4	+3.9	+5.6	+8.7	+12.1	+16.3	+17.3	+17.8	+18.4	+19.0	+19.0	+19.0	89		
30.0	4.5	+2.0	+2.0	+2.0	+2.4	+3.5	+6.7	+10.3	+13.2	+16.7	+17.8	+18.9	+19.5	+20.0	+20.0	+20.0	87		

# IRIG RANGE REFERENCE ATMOSPHERE, JUNE

TABLE III.6

STATION				ELEVATION MSL (meters)				LOCATION				PERIOD OF DATA				SCALAR WINDS			
LAUNCH SITE-FORT GREENLY				134				64° 49' N 147° 52' W				JAN 1956 TO JAN 1961				FORT GREENLY MISSILE RANGE LAUNCH SITE			
ALT. (km.)	NO.	MIN. OBS.	DIR. SPEED (deg)	1.0	2.28	5.0	10.0	250	500	750	900	950	97.72	99.0	MAX SPEED	DIR. (deg)			
SFC	592	+0.0	+0.0	+0.0	+0.4	+1.0	+2.1	+3.6	+5.6	+8.0	+9.3	+10.6	+11.7	+8.0	+30.0	20			
0.5	585	+0.0	+0.0	+0.0	+0.2	+0.5	+1.0	+2.1	+3.6	+5.6	+8.0	+10.8	+12.5	+17.0	+17.0	267			
1.0	582	+0.0	+0.0	+0.0	+0.2	+0.5	+1.0	+2.1	+3.9	+6.3	+8.6	+10.8	+12.6	+14.0	+21.0	255			
1.5	574	+0.0	+0.0	+0.0	+0.3	+0.8	+1.3	+2.5	+4.4	+6.3	+9.1	+10.9	+12.6	+16.0	+18.0	290			
2.0	561	+0.0	+0.0	+0.0	+0.2	+0.7	+1.3	+2.5	+4.4	+6.9	+9.4	+10.9	+13.3	+15.4	+18.0	214			
2.5	545	+0.0	+0.0	+0.0	+0.2	+0.7	+1.6	+2.8	+4.7	+7.4	+10.3	+12.7	+15.3	+16.5	+20.0	276			
3.0	530	+0.0	+0.0	+0.0	+0.2	+0.8	+1.4	+2.7	+4.7	+7.6	+11.3	+14.2	+15.9	+17.8	+21.0	170			
4.0	506	+0.0	+0.0	+0.3	+1.0	+1.0	+1.6	+3.0	+5.1	+8.2	+12.0	+14.7	+17.0	+17.9	+24.0				
5.0	483	+0.0	+0.3	+1.0	+1.9	+2.8	+4.7	+6.5	+9.8	+14.1	+16.9	+18.9	+21.1	+28.0					
6.0	466	+0.0	+0.2	+0.9	+1.8	+2.8	+4.7	+7.7	+12.5	+17.6	+19.7	+22.8	+25.1	+43.0	272				
7.0	445	+1.0	+1.3	+2.1	+3.3	+5.8	+9.5	+15.5	+20.7	+23.9	+26.8	+29.2	+32.0						
8.0	427	+1.0	+1.0	+2.1	+2.7	+3.9	+7.0	+10.8	+16.9	+24.1	+26.6	+31.1	+35.8	+50.0	143				
9.0	407	+1.0	+1.2	+2.2	+3.3	+6.8	+7.7	+12.3	+19.4	+26.2	+29.6	+35.4	+38.6	+62.0	159				
10.0	390	+1.0	+1.4	+2.1	+2.7	+4.0	+6.7	+11.7	+18.8	+26.1	+29.5	+36.5	+41.5	+57.0	168				
11.0	378	+1.0	+1.1	+1.4	+2.1	+3.1	+5.3	+8.8	+14.4	+23.6	+28.0	+31.4	+37.1	+46.0	16				
12.0	365	+0.0	+0.2	+0.6	+1.2	+2.0	+4.0	+6.6	+11.8	+19.3	+24.2	+28.3	+30.3	+47.0	286				
13.0	356	+0.0	+0.2	+1.0	+1.5	+2.9	+5.4	+9.0	+14.0	+18.4	+23.8	+26.2	+34.0	+56.0					
14.0	350	+0.0	+0.7	+0.7	+1.4	+2.7	+5.4	+9.7	+14.7	+19.5	+25.5	+29.5	+36.0	+56.0	258				
15.0	345	+0.0	+0.5	+1.0	+2.3	+3.9	+6.3	+10.3	+14.1	+17.5	+21.0	+25.0	+30.0						
16.0	338	+0.0	+0.0	+0.0	+0.4	+1.0	+2.1	+3.7	+5.9	+7.8	+9.8	+12.2	+17.6	+27.0	330				
17.0	330	+0.0	+0.0	+0.1	+0.8	+2.0	+3.6	+5.4	+6.8	+8.0	+10.4	+18.7	+29.0	+54.0	154				
18.0	321	+0.0	+0.0	+0.0	+0.1	+1.0	+1.9	+3.4	+5.3	+6.8	+7.8	+9.3	+11.3	+22.0					
19.0	314	+0.0	+0.0	+0.0	+0.5	+1.1	+2.1	+3.5	+5.2	+7.2	+11.5	+14.6	+19.5	+36.0					
20.0	302	+0.0	+0.2	+0.7	+1.3	+2.3	+3.8	+5.5	+7.1	+8.3	+11.0	+15.4	+21.0		33				
21.0	284	+0.0	+0.4	+1.1	+1.7	+2.8	+4.2	+5.9	+7.6	+9.8	+11.2	+13.5	+21.0	+50.0	105				
22.0	269	+0.0	+0.1	+1.0	+1.4	+2.2	+3.4	+4.7	+6.2	+7.7	+8.7	+10.2	+13.1	+18.0	44				
23.0	246	+0.0	+0.1	+0.9	+1.5	+2.4	+3.9	+5.5	+7.2	+9.1	+9.7	+10.6	+13.5	+29.0	75				
24.0	222	+1.0	+1.3	+2.1	+2.9	+4.5	+6.2	+8.0	+9.8	+11.7	+13.6	+15.7	+18.0	+50.0					
25.0	199	+0.0	+0.9	+1.8	+2.8	+3.6	+5.1	+6.9	+8.9	+10.8	+12.3	+14.2	+20.0	+29.0	85				
26.0	178	+0.0	+0.7	+1.3	+2.1	+3.6	+6.1	+7.8	+9.5	+11.6	+13.2	+15.9	+22.6	+29.0	52				
27.0	150	+0.0	+0.2	+1.1	+2.2	+4.0	+6.2	+8.5	+10.3	+12.7	+14.2	+17.5	+25.0	+52.0	92				
28.0	120	+0.0	+1.0	+1.0	+1.8	+2.7	+4.5	+6.6	+8.7	+11.0	+12.5	+14.5	+16.2	+19.8	+21.0	190			
29.0	104	+1.0	296	+2.0	+3.1	+4.1	+4.7	+6.9	+9.2	+11.0	+13.2	+14.7	+18.6	+19.9	+22.0	2			
30.0	83	+4.0	76	+4.2	+5.0	+5.6	+7.9	+10.1	+12.2	+14.3	+15.9	+20.5	+23.1	+24.0	+31.3				

# IRIG RANGE REFERENCE ATMOSPHERE, JULY

TABLE II.1.7

STATION			ELEVATION MSL (meters)			LOCATION			PERIOD OF DATA			SCALAR WINDS						
LAUNCH SITE-FORT GREENY			FAIRBANKS, ALASKA			JAN 1956 TO JAN 1961			JAN 1956 TO JAN 1961			FORT GREENY MISSILE RANGE LAUNCH SITE						
ALT (km)	NO.	OBS.	MIN. DIR.	DIR.	SPEED (deg)	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0	MAX DIR. SPEED (deg)	
SFC	594	+0.0	+0.0	+0.0	+0.0	+0.0	+0.2	+0.5	+1.0	+1.1	+2.3	+3.8	+5.0	+5.9	+7.5	+8.2	+31.0	220
0.5	591	+0.0	+0.0	+0.0	+0.0	+0.0	+0.0	+0.0	+0.0	+2.1	+3.7	+6.2	+8.7	+9.2	+11.3	+14.5	+19.0	243
1.0	585	+1.0	+0.1	+0.1	+0.1	+0.1	+0.4	+1.0	+1.3	+2.7	+4.6	+7.6	+10.7	+12.8	+15.6	+17.7	+22.0	244
1.5	573	+0.0	+0.1	+0.1	+0.1	+0.1	+0.5	+1.0	+1.5	+3.1	+5.2	+8.1	+10.9	+13.3	+15.7	+17.6	+24.0	253
2.0	557	+0.0	+0.1	+0.1	+0.1	+0.1	+0.5	+1.1	+2.0	+3.4	+5.6	+8.6	+11.4	+13.0	+15.3	+16.8	+21.0	250
2.5	541	+0.0	+0.2	+0.2	+0.2	+0.2	+1.4	+2.2	+2.2	+3.7	+6.2	+9.0	+12.3	+14.6	+15.9	+17.5	+21.0	171
3.0	528	+0.0	+0.0	+0.0	+0.0	+0.0	+0.5	+1.3	+2.2	+4.0	+6.3	+9.1	+12.5	+14.6	+16.6	+18.2	+22.0	220
4.0	494	+1.0	+1.0	+1.0	+1.0	+1.0	+1.4	+2.1	+2.1	+4.0	+6.7	+9.7	+13.1	+14.8	+17.5	+19.4	+22.0	200
5.0	464	+0.0	+0.5	+0.5	+0.5	+0.5	+1.1	+1.7	+2.7	+4.6	+7.5	+10.8	+14.3	+16.4	+18.9	+21.6	+26.0	200
6.0	445	+0.0	+1.0	+1.0	+1.0	+1.0	+2.0	+2.0	+2.9	+5.4	+8.5	+12.2	+15.5	+17.9	+21.4	+24.2	+38.0	331
7.0	424	+1.0	+1.2	+1.2	+1.2	+1.2	+2.4	+3.4	+4.3	+6.2	+10.0	+13.8	+18.1	+21.2	+25.6	+30.7	+38.0	334
8.0	403	+2.0	+0.6	+0.6	+1.4	+2.6	+2.6	+4.3	+7.0	+7.0	+11.0	+15.8	+21.5	+24.6	+28.9	+31.9	+42.0	138
9.0	389	+1.0	+1.3	+2.1	+3.2	+4.3	+4.3	+7.8	+7.8	+12.2	+17.8	+24.0	+27.2	+32.1	+35.5	+57.0	19.	
10.0	379	+2.0	-	-	+2.3	+3.1	+4.5	+8.0	+8.0	+12.6	+19.0	+25.5	+29.8	+33.1	+39.2	+70.0	251	
11.0	365	+0.0	+1.1	+1.1	+1.8	+3.0	+4.0	+6.0	+6.6	+11.3	+17.5	+23.5	+26.3	+34.3	+37.3	+49.0	251	
12.0	360	+0.0	+0.4	+0.4	+1.1	+1.7	+2.8	+5.1	+5.2	+8.6	+13.4	+18.8	+21.5	+28.7	+36.4	+44.0	170	
13.0	345	+0.0	+0.6	+0.6	+1.3	+2.1	+2.1	+3.8	+6.7	+10.5	+14.2	+16.7	+20.7	+24.5	+33.0	+33.0	204	
14.0	340	+0.0	+0.1	+0.1	+0.7	+1.2	+1.7	+3.3	+5.3	+8.3	+11.7	+14.2	+16.5	+19.6	+29.0	+34.0	340	
15.0	333	+0.0	+0.0	+0.0	+0.2	+0.5	+1.2	+2.7	+4.7	+7.2	+10.7	+13.7	+16.4	+19.7	+21.0	+34.3	343	
16.0	330	+0.0	+0.0	+0.0	+0.4	+0.4	+1.0	+2.4	+4.2	+6.3	+8.6	+11.3	+14.0	+15.2	+17.0	+25.3	253	
17.0	321	+0.0	+0.0	+0.2	+0.2	+1.0	+2.0	+3.6	+5.7	+7.4	+9.1	+10.8	+14.7	+19.0	+21.0	+31.0	193	
18.0	313	+0.0	+0.0	+0.6	+1.3	+2.1	+2.1	+3.8	+6.7	+10.5	+14.2	+16.7	+20.7	+24.5	+33.0	+33.0	204	
19.0	307	+0.0	+0.1	+0.1	+0.7	+1.2	+1.7	+3.3	+5.3	+8.3	+11.7	+14.2	+16.5	+19.6	+29.0	+34.0	340	
20.0	299	+0.0	+0.0	+0.0	+0.2	+0.5	+1.2	+2.7	+4.7	+7.2	+10.7	+13.7	+16.4	+19.7	+21.0	+34.3	343	
21.0	294	+0.0	+0.2	+0.2	+1.0	+2.0	+3.2	+4.8	+6.8	+9.2	+12.0	+15.0	+18.0	+21.0	+24.0	+31.0	253	
22.0	284	+0.0	+0.5	+0.5	+1.2	+2.3	+3.6	+5.2	+7.6	+10.7	+13.7	+17.3	+20.7	+24.0	+27.0	+31.0	87	
23.0	266	+0.0	+0.2	+1.1	+1.7	+2.8	+4.4	+6.9	+9.6	+12.7	+15.7	+18.7	+21.7	+24.8	+27.0	+31.0	87	
24.0	252	+0.0	+0.5	+1.2	+1.8	+3.3	+4.8	+6.5	+9.5	+12.5	+15.5	+18.5	+21.5	+24.5	+27.0	+31.0	88	
25.0	228	+0.0	+0.4	+1.1	+2.5	+4.0	+5.1	+6.9	+9.3	+12.3	+15.3	+18.3	+21.3	+24.3	+27.0	+31.0	88	
26.0	194	+0.0	+0.2	+1.0	+1.8	+2.8	+4.3	+6.2	+7.8	+10.0	+13.0	+16.0	+19.0	+22.0	+25.0	+28.0	5	
27.0	166	+2.0	+2.3	+3.1	+4.0	+5.3	+6.7	+8.1	+9.4	+10.1	+13.0	+16.0	+19.0	+22.0	+25.0	+28.0	73	
28.0	138	+2.0	103	+2.4	+3.1	+4.1	+5.9	+7.3	+8.9	+10.2	+13.0	+16.0	+19.0	+22.0	+25.0	+28.0	68	
29.0	110	+3.0	+3.1	+3.8	+4.5	+6.0	+7.5	+9.7	+11.0	+12.2	+15.0	+18.0	+21.0	+24.0	+27.0	+30.0	76	
30.0	94	+4.0	+4.1	+4.6	+6.5	+8.3	+10.4	+12.8	+13.4	+14.0	+16.0	+18.0	+21.0	+24.0	+27.0	+30.0	118	

IRIG RANGE REFERENCE ATMOSPHERE, AUGUST TABLE II.1.8

STATION				LOCATION				PERIOD OF DATA				SCALAR WINDS				
FAIRBANKS, ALASKA				64° 49' N 147° 52' W				JAN 1956 TO JAN 1961				FORT GREENLY MISSILE RANGE LAUNCH SITE				
LAUNCH SITE-FORT GREENLY				392 63° 59' N 145° 43' W				UNITS: WIND SPEED-m/sec								
ALT. (km)	NO. N <sub>2</sub>	MIN. OBS.	DIR. SPEED (deg)	i.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0	MAX SPEED (deg)	DIR. (deg)
SFC	57.3	+0.0		+0.0	+0.0	+0.3	+1.0	+2.1	+3.3	+4.6	+5.6	+7.1	+8.2	+10.0		
0.5	56.5	+0.0		+0.0	+0.0	+0.2	+0.8	+1.3	+2.5	+5.3	+7.8	+9.7	+12.5	+20.0	235	
1.0	55.4	+0.0		+0.0	+0.0	+0.1	+1.1	+2.5	+4.1	+6.7	+9.8	+12.6	+16.6	+18.8	+25.0	
1.5	53.7	+0.0		+0.0	+0.1	+0.5	+1.6	+2.1	+3.2	+5.0	+7.5	+10.8	+14.3	+17.2	+26.0	
2.0	52.0	+0.0		+0.2	+0.7	+1.3	+2.0	+2.6	+3.6	+5.7	+8.6	+12.2	+15.6	+18.6	+26.0	
2.5	50.1	+0.0		+0.3	+0.9	+1.6	+2.3	+2.9	+3.9	+6.4	+9.5	+13.4	+16.4	+20.9	+31.0	
3.0	48.3	+0.0		+0.2	+0.5	+1.3	+2.3	+4.0	+6.5	+9.6	+13.3	+16.9	+19.9	+22.9	+32.0	
4.0	44.9	+0.0		+0.4	+1.1	+1.7	+2.6	+4.4	+6.7	+9.9	+14.0	+17.1	+22.8	+26.5	+36.0	
5.0	43.2	+0.0		+0.5	+1.1	+1.8	+3.0	+5.0	+7.6	+11.1	+15.8	+20.2	+25.5	+29.8	+37.0	
6.0	41.7	+0.0		+0.6	+1.2	+2.1	+3.4	+5.8	+8.5	+13.0	+18.8	+23.1	+28.4	+34.8	+45.0	
7.0	39.9	+1.3		+1.2	+1.8	+2.7	+3.9	+6.4	+10.4	+15.2	+21.6	+27.0	+33.3	+42.0	+47.0	
8.0	32.2	+2.0		+2.2	+3.2	+4.5	+7.2	+12.2	+19.0	+21.4	+27.2	+31.9	+39.6	+46.1	+56.0	
9.0	36.4	+1.0		+1.5	+2.2	+3.2	+4.4	+7.6	+13.4	+21.0	+29.9	+37.2	+44.7	+56.3	+64.0	
10.0	34.9	+0.0		+1.1	+2.0	+3.0	+4.2	+8.0	+13.1	+22.4	+32.3	+38.5	+51.0	+66.2	+71.0	
11.0	34.0	+1.0	32	+1.3	+1.9	+2.4	+3.4	+6.5	+11.5	+18.7	+29.1	+37.0	+49.1	+54.8	+70.0	
12.0	33.4	+1.0		+1.0	+1.6	+2.4	+3.4	+5.4	+8.6	+15.1	+25.3	+37.4	+41.6	+50.6	+79.0	
13.0	32.0	+1.0		+1.0	+1.3	+1.9	+2.7	+4.6	+7.3	+11.7	+19.0	+25.6	+32.8	+39.8	+50.0	
14.0	31.0	+0.0		+1.0	+1.5	+2.2	+2.8	+4.3	+6.3	+9.9	+15.5	+18.9	+29.9	+35.9	+44.0	
15.0	30.6	+0.0		+0.2	+1.0	+1.8	+2.5	+4.1	+5.8	+8.5	+12.1	+15.6	+23.5	+28.9	+35.0	
16.0	30.6	+0.0		+0.2	+0.7	+1.4	+2.2	+3.4	+4.9	+7.2	+10.2	+12.9	+21.5	+23.6	+30.0	
17.0	29.9	+0.0		+0.4	+1.1	+1.8	+3.0	+4.3	+6.3	+9.3	+13.0	+18.1	+24.0	+29.0	+220	
18.0	29.1	+0.0		+0.2	+0.8	+1.3	+2.5	+3.9	+5.6	+7.5	+9.6	+13.6	+18.0	+34.0	219	
19.0	27.9	+0.0		+0.3	+1.1	+2.0	+3.0	+4.8	+6.7	+8.8	+11.3	+13.2	+17.0	+26.2		
20.0	27.6	+0.0		+0.4	+1.1	+1.9	+3.1	+4.3	+6.3	+8.2	+10.5	+13.1	+16.0	+25.8		
21.0	27.0	+0.0		+0.4	+1.4	+2.5	+3.9	+6.2	+7.7	+9.7	+12.9	+16.0	+19.5	+28.5		
22.0	26.1	+0.0		+0.3	+1.3	+2.4	+3.7	+5.3	+7.1	+9.1	+12.1	+17.2	+18.1	+21.0		
23.0	24.0	+0.0		+0.0	+0.5	+1.4	+2.5	+3.7	+5.1	+6.1	+7.3	+8.6	+8.6	+12.0		
24.0	21.3	+0.0		+0.1	+0.5	+1.5	+2.6	+3.9	+5.5	+6.8	+7.8	+10.4	+13.0	+17.0		
25.0	18.3	+0.0		+0.0	+0.6	+1.8	+3.0	+4.5	+6.3	+7.7	+9.2	+9.7	+12.0	+15.0		
26.0	15.7	+0.0		+0.7	+1.7	+3.0	+5.2	+7.1	+9.0	+10.4	+14.4	+27.0	+31.0			
27.0	12.7	+0.0		+0.5	+1.8	+3.7	+5.5	+7.5	+9.4	+11.1	+14.7	+26.0	+31.0			
28.0	9.9	+0.0		+0.0	+0.3	+0.9	+2.0	+3.6	+5.7	+7.5	+8.3	+9.3	+10.0	+11.0		
29.0	7.4	+0.0		+0.2	+0.8	+2.1	+3.8	+6.4	+7.6	+8.1	+9.3	+10.2	+11.0	+13.0		
30.0	5.1	+0.0		+0.7	+1.3	+2.7	+4.7	+7.1	+8.8	+9.7	+10.8	+12.4	+13.0	+20.2		

IRIG RANGE REFERENCE ATMOSPHERE, SEPTEMBER TABLE II.9

STATION				ELEVATION MSL (meters)				LOCATION				PERIOD OF DATA				SCALAR WINDS			
LAUNCH SITE-FORT GREELY				64° 49' N 147° 52' W				JAN 1956 TO JAN 1961				FORT GREELY RANGE LAUNCH SITE							
ALT (km)	NO.	MIN. DIR.	SPEED (deg)	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0	MAX SPEED (m/sec)	DIR. (deg)			
M.S.	OBS.																		
SFC	56.9	+0.0		+0.0	+0.1	+0.3	+0.8	+2.0	+3.7	+4.8	+5.7	+7.1	+7.8	+11.0	210				
0.5	55.6	+0.0		+0.1	+0.3	+0.7	+1.3	+2.6	+3.7	+6.5	+9.4	+11.1	+12.7	+14.4	+20.0	245			
1.0	55.1	+0.0		+0.2	+0.3	+0.7	+1.2	+2.0	+4.6	+8.1	+11.8	+13.5	+16.0	+19.4	+27.0	268			
1.5	53.7	+0.0		+0.2	+0.7	+1.2	+1.8	+3.2	+5.4	+8.9	+12.3	+14.5	+18.2	+22.6	+29.0	255			
2.0	51.1	+0.0		+0.3	+1.0	+1.4	+2.0	+3.8	+6.4	+9.8	+12.7	+14.6	+18.0	+19.6	+27.0	200			
2.5	49.8	+0.0		+0.1	+0.4	+1.0	+1.8	+4.2	+6.2	+9.9	+13.0	+16.1	+18.2	+24.0	+28.0	243			
3.0	48.2	+0.0		+0.2	+0.7	+1.6	+2.4	+4.4	+7.1	+10.7	+14.6	+16.9	+20.6	+24.1	+30.0	250			
4.0	46.4	+0.0		+0.4	+1.0	+1.7	+2.8	+5.1	+8.3	+12.5	+17.8	+20.7	+24.7	+27.6	+38.0	251			
5.0	44.8	+0.0		+0.6	+1.3	+2.2	+3.4	+5.6	+9.5	+14.8	+21.0	+25.5	+29.6	+33.1	+41.0	255			
6.0	42.6	+0.0		+0.5	+1.1	+1.9	+3.5	+6.3	+11.5	+17.6	+24.5	+29.7	+34.4	+39.8	+50.0	256			
7.0	40.2	+0.0		+0.2	+1.2	+2.3	+3.8	+7.2	+13.0	+20.8	+29.4	+37.3	+43.8	+47.9	+60.0	262			
8.0	37.9	+0.0		+0.5	+1.4	+2.6	+4.7	+8.1	+14.8	+23.2	+34.0	+41.0	+47.1	+54.1	+67.0	266			
9.0	34.8	+0.0		+1.1	+2.1	+3.5	+4.9	+9.9	+15.5	+24.7	+38.1	+48.3	+56.5	+62.5	+69.0	272			
10.0	33.0	+1.0	238	+1.7	+2.2	+3.0	+4.3	+8.3	+14.9	+25.0	+38.5	+47.5	+57.4	+62.7	+70.0	289			
11.0	31.6	+2.0		+2.1	+2.6	+4.0	+7.3	+12.5	+22.2	+33.0	+40.7	+51.9	+54.9	+64.0	+67.0	267			
12.0	30.9	+2.0		+1.0	+1.5	+2.6	+3.7	+6.6	+11.1	+18.4	+29.5	+34.8	+43.4	+49.9	+64.0	290			
13.0	30.1	+0.0		+1.0	+1.9	+2.7	+3.8	+6.8	+10.3	+15.7	+24.1	+28.3	+37.5	+41.9	+45.0	260			
14.0	29.3	+0.0		+2.0	+2.0	+2.8	+3.7	+6.5	+9.7	+13.8	+20.4	+23.6	+26.7	+35.0	+47.0	209			
15.0	28.7	+1.0		+1.1	+1.5	+3.0	+4.0	+6.2	+9.2	+12.9	+18.3	+21.4	+24.2	+27.1	+51.0	206			
16.0	27.9	+2.0		+0.8	+1.8	+2.9	+4.2	+6.4	+8.9	+12.6	+16.6	+19.0	+20.9	+24.4	+42.0	222			
17.0	27.4	+0.0		+1.1	+1.7	+2.9	+4.1	+5.1	+8.7	+11.8	+14.8	+18.7	+20.7	+21.6	+25.0	312			
18.0	27.2	+1.0		+1.1	+2.0	+2.6	+3.4	+5.6	+8.3	+11.1	+14.5	+16.3	+17.5	+19.6	+24.0	282			
19.0	26.4	+0.0		+1.1	+1.8	+2.4	+3.4	+5.5	+8.2	+11.3	+13.9	+16.5	+18.6	+20.3	+28.0	211			
20.0	25.7	+0.0		+0.5	+1.3	+2.1	+2.9	+5.2	+7.9	+10.9	+13.4	+16.3	+18.2	+20.4	+26.0	219			
21.0	24.9	+0.0		+1.3	+2.0	+2.4	+3.2	+5.0	+7.5	+10.8	+13.4	+16.0	+16.8	+20.5	+25.0	226			
22.0	23.7	+1.0	328	+1.2	+1.7	+2.6	+3.4	+4.9	+7.5	+11.0	+14.2	+15.7	+17.1	+18.6	+28.0	232			
23.0	22.1	+1.0		+1.0	+1.7	+2.8	+3.5	+5.1	+7.6	+11.0	+15.1	+16.4	+17.9	+19.9	+26.0	183			
24.0	19.0	+1.0		+1.4	+2.4	+3.7	+6.0	+8.4	+11.5	+14.3	+16.7	+19.5	+20.5	+27.0	272				
25.0	16.0	+1.0		+1.1	+2.0	+3.2	+5.8	+8.5	+11.5	+15.0	+18.5	+21.1	+22.2	+23.0	+29.0	285			
26.0	13.4	+0.0		+0.3	+1.3	+2.4	+4.6	+5.8	+9.1	+12.1	+16.2	+18.7	+21.9	+22.8	+25.0	293			
27.0	9.5	+0.0		+1.5	+2.8	+3.8	+5.7	+9.0	+13.4	+18.5	+19.8	+21.8	+22.5	+23.0	+25.0	296			
28.0	7.3	+2.0	133	+2.6	+3.3	+4.0	+7.1	+10.5	+14.5	+19.7	+22.7	+24.4	+24.7	+25.0	+31.0	296			
29.0	5.2	+3.0		+3.5	+5.0	+7.3	+12.3	+16.5	+21.9	+25.4	+26.8	+29.4	+30.0	+31.0	+31.0	296			
30.0	4.1	+4.0	231	+4.2	+4.7	+7.6	+12.8	+19.4	+23.8	+25.4	+30.0	+30.5	+31.0	+31.0	+31.0	296			

IRIG RANGE REFERENCE ATMOSPHERE, OCTOBER TABLE III.10

STATION	ELEVATION M <sub>SL</sub> (meters)			LOCATION			PERIOD OF DATA			SCALAR WINDS		
	ALT (km)	NO. OBS.	MIN. SPEED (deg)	LATITUDE	LONGITUDE		JAN 1956	TO JAN 1961		FORT GREENE MISSILE RANGE LAUNCH SITE		
FAIRBANKS, ALASKA	134	64° 49' N	147° 52' W									
LAUNCH SITE-FORT GREENLY	392	63° 59' N	145° 43' W									
ALT (km)	NO. OBS.	MIN. SPEED (deg)	DIR.	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0
M <sub>SL</sub>												
SFC	523	+0.0		+0.0	+0.0	+0.3	+0.9	+0.9	+2.2	+3.4	+4.5	+5.1
0.5	500	+0.0		+0.0	+0.0	+0.7	+2.1	+3.8	+5.7	+6.0	+9.3	+10.9
1.0	485	+0.0		+0.1	+0.5	+1.1	+1.7	+2.9	+5.4	+8.2	+10.8	+12.9
1.5	472	+0.0		+0.2	+0.6	+1.2	+2.0	+3.6	+6.0	+9.0	+12.6	+15.0
2.0	455	+1.0		+1.0	+1.4	+2.2	+2.2	+3.9	+6.5	+9.5	+13.8	+16.9
2.5	439	+1.0		+1.0	+1.6	+2.4	+4.6	+6.9	+10.2	+14.5	+17.3	+21.0
3.0	430	+1.0		+1.7	+2.7	+4.7	+7.5	+10.7	+15.2	+18.0	+19.8	+21.2
4.0	411	+1.0		+0.6	+1.3	+2.3	+3.4	+5.3	+8.5	+12.5	+16.9	+19.9
5.0	385	+1.0		+1.1	+2.3	+3.6	+6.2	+9.8	+14.7	+19.6	+22.7	+25.6
6.0	361	+1.0		+1.3	+2.3	+4.0	+7.5	+11.6	+16.9	+22.6	+25.9	+30.3
7.0	335	+1.0		+1.0	+2.1	+3.2	+4.2	+8.0	+13.3	+19.0	+25.6	+30.3
8.0	315	+1.0		205	+1.3	+1.8	+3.2	+5.1	+9.0	+13.8	+20.6	+28.1
9.0	295	+0.0		+0.9	+2.1	+3.5	+5.4	+8.9	+14.1	+21.1	+28.1	+35.0
10.0	282	+0.0		+1.0	+2.1	+3.6	+5.1	+8.8	+13.8	+20.4	+28.2	+34.2
11.0	265	+0.0		+1.8	+2.3	+3.3	+4.6	+8.0	+12.7	+18.6	+26.1	+32.3
12.0	254	+2.0		+2.1	+2.9	+4.7	+7.8	+12.4	+18.2	+25.1	+28.1	+38.2
13.0	24.4	+2.0		+2.3	+3.4	+5.2	+7.8	+12.2	+17.1	+23.7	+27.2	+32.2
14.0	23.6	+2.0		+3.0	+3.9	+5.1	+8.1	+12.1	+17.1	+23.0	+27.2	+35.5
15.0	22.9	+1.0		218	+2.1	+3.1	+3.6	+8.1	+12.5	+17.5	+22.3	+28.1
16.0	21.5	+0.0		+1.5	+2.6	+3.5	+4.6	+8.2	+12.0	+17.1	+20.6	+23.0
17.0	20.6	+0.0		+1.5	+2.2	+3.0	+4.9	+8.0	+12.0	+16.7	+20.6	+23.2
18.0	19.6	+0.0		+2.1	+2.5	+3.5	+6.8	+8.1	+12.0	+16.5	+21.3	+23.3
19.0	18.8	+0.0		+1.4	+2.6	+3.3	+4.1	+8.2	+12.0	+16.7	+19.9	+22.8
20.0	17.7	+0.0		+1.5	+2.5	+3.6	+8.0	+8.1	+11.7	+16.4	+20.1	+22.5
21.0	16.6	+0.0		+1.2	+1.9	+2.8	+3.7	+7.3	+11.6	+16.9	+20.1	+24.2
22.0	15.2	+0.0		+1.0	+1.3	+1.9	+3.0	+7.3	+11.5	+15.6	+18.9	+20.8
23.0	13.4	+0.0		+0.3	+1.2	+2.2	+4.6	+12.0	+12.0	+15.7	+19.3	+21.1
24.0	11.4	+0.0		+0.3	+0.3	+1.4	+4.4	+11.8	+11.8	+16.7	+21.6	+23.6
25.0	9.4	+0.0		+1.4	+1.4	+3.5	+4.5	+11.3	+11.3	+16.5	+22.5	+25.3
26.0	7.1	+0.0		+0.2	+1.5	+3.9	+7.7	+11.7	+16.8	+21.9	+26.7	+30.3
27.0	5.5	+0.0		+0.7	+2.1	+4.7	+11.5	+18.0	+22.1	+23.2	+25.3	+25.7
28.0	3.4	+0.0		+1.0	+2.1	+4.1	+9.7	+20.6	+23.5	+25.8	+26.9	+31.4
29.0	2.2	+0.0		+8.1	+10.0	+17.0	+20.0	+26.0	+29.8	+30.3	+30.7	+31.8
30.0	1.2	+4.0	53	+1.0	+2.1	+4.1	+9.7	+23.5	+25.8	+26.9	+30.3	+31.0

IRIG RANGE REFERENCE ATMOSPHERE, NOVEMBER TABLE III

STATION			ELEVATION MSL (meters)		LOCATION		PERIOD OF DATA		SCALAR WINDS						
FAIRBANKS, ALASKA			134		64° 49' N 147° 52' W		JAN 1956 TO JAN 1961		FORT GREENY MISSILE RANGE LAUNCH SITE						
LAUNCH SITE-FORT GREENY			392		63° 59' N 145° 43' W		CUMULATIVE PERCENTAGE		WIND SPEED-m/sec		MAX SPEED				
ALT (km)	NO OBS.	MIN. SPEED (deg)	1.0	2.28	5.0	100	250	50.0	750	900	95.0	97.72	99.0		
SFC	551	+0.0	+0.0	+0.0	+0.3	+0.9	+0.1	+1.4	+2.7	+3.7	+4.3	+4.9	+5.7	+8.0	
0.5	535	+0.0	+0.1	+0.5	+1.2	+1.9	+3.5	+6.0	+8.3	+9.6	+11.5	+13.6	+18.0	101	
1.0	526	+0.0	+0.1	+0.7	+1.3	+2.2	+3.8	+6.2	+9.3	+11.8	+13.4	+15.5	+17.8	21.0	
1.5	515	+0.0	+0.1	+0.7	+1.3	+2.2	+3.8	+6.2	+9.3	+12.7	+14.9	+16.8	+19.9	23.0	
2.0	496	+0.0	+0.1	+0.4	+1.1	+2.2	+4.1	+6.6	+9.6	+13.2	+15.3	+17.5	+19.5	+26.0	
2.5	479	+0.0	+0.0	+0.6	+1.4	+2.5	+4.3	+6.9	+10.5	+13.7	+16.6	+19.3	+22.2	+28.0	
3.0	469	+0.0	+0.2	+0.9	+1.5	+2.5	+4.5	+7.4	+10.8	+14.8	+18.3	+21.1	+23.7	+29.0	
4.0	434	+1.0	+1.3	+2.2	+3.2	+5.2	+8.5	+12.8	+16.2	+19.5	+22.7	+25.8	+30.0	232	
5.0	402	+1.0	+1.1	+2.1	+3.5	+6.5	+10.2	+15.1	+20.0	+24.6	+30.6	+32.4	+38.0	254	
6.0	384	+1.0	+1.0	+1.6	+2.5	+3.7	+6.8	+11.0	+17.9	+23.9	+27.6	+34.6	+38.1	+45.0	
7.0	364	+1.0	315	+1.3	+2.0	+2.7	+4.3	+8.0	+13.6	+21.0	+29.3	+33.8	+39.7	+43.3	213
8.0	345	+2.0	+2.0	+2.6	+3.5	+5.2	+8.7	+14.2	+22.9	+33.2	+39.9	+45.1	+48.5	+77.0	213
9.0	318	+0.0	+1.2	+2.1	+3.0	+4.5	+7.9	+13.5	+20.9	+32.2	+38.1	+44.9	+47.9	+71.0	213
10.0	302	+1.0	108	+1.5	+2.1	+2.9	+4.2	+7.0	+12.0	+20.0	+32.9	+42.1	+44.9	+58.0	211
11.0	288	+0.0	+0.9	+1.8	+3.0	+4.2	+7.4	+11.3	+17.1	+23.7	+37.8	+43.4	+47.1	+59.0	284
12.0	281	+2.0	+2.0	+2.3	+3.0	+4.4	+7.0	+11.5	+16.6	+21.5	+25.9	+30.7	+33.1	+45.0	296
13.0	275	+2.0	+2.0	+2.0	+3.3	+4.8	+7.4	+12.1	+16.5	+20.8	+25.2	+27.7	+31.2	+39.0	284
14.0	265	+1.0	89	+1.4	+2.2	+3.5	+5.5	+8.4	+11.9	+16.2	+20.5	+23.4	+26.9	+33.3	+36.0
15.0	260	+0.0	+1.2	+2.4	+4.0	+6.1	+8.1	+12.1	+16.3	+20.2	+23.0	+26.0	+28.4	+40.0	220
16.0	256	+0.0	+0.5	+2.3	+3.5	+5.7	+9.0	+12.6	+17.1	+21.1	+24.5	+28.0	+38.4	+49.0	232
17.0	249	+1.0	+1.0	+1.5	+4.0	+5.4	+9.5	+12.7	+17.0	+21.5	+24.6	+27.6	+31.7	+49.0	277
18.0	244	+2.0	332	+2.2	+2.6	+4.6	+6.7	+9.6	+13.6	+18.3	+22.0	+26.1	+28.7	+34.2	+38.0
19.0	228	+0.0	+2.2	+3.5	+5.1	+6.3	+9.0	+13.8	+17.7	+23.8	+26.9	+30.8	+36.7	+38.0	
20.0	216	+0.0	+2.0	+2.9	+4.4	+6.1	+8.9	+14.2	+18.1	+23.4	+28.6	+32.0	+35.8	+39.0	264
21.0	207	+2.0	+2.0	+3.7	+4.5	+5.8	+8.1	+14.3	+19.6	+26.7	+31.6	+35.2	+37.9	+43.0	261
22.0	190	+1.0	310	+1.4	+2.6	+4.2	+5.8	+9.1	+14.2	+20.2	+21.6	+33.7	+38.8	+43.5	+45.0
23.0	175	+2.0	+4.1	+4.1	+5.5	+9.5	+15.3	+21.8	+27.2	+31.6	+37.5	+45.2	+50.0	+59.0	289
24.0	162	+1.0	+1.4	+3.3	+5.0	+9.2	+15.2	+21.5	+26.4	+35.4	+38.3	+41.3	+49.0	+50.0	308
25.0	143	+0.0	+1.2	+2.0	+3.0	+5.0	+9.5	+15.5	+23.8	+29.4	+35.8	+40.7	+44.5	+50.0	272
26.0	127	+2.0	+3.4	+4.7	+10.6	+17.3	+24.8	+31.3	+35.8	+45.1	+47.7	+51.0	+67.0	+77.0	
27.0	98	+1.0	247	+1.4	+3.4	+5.5	+10.3	+19.5	+26.8	+33.5	+36.0	+37.7	+42.0	+43.0	284
28.0	69	+2.0	+3.7	+5.6	+11.0	+21.0	+27.3	+34.0	+37.2	+38.4	+41.3	+42.0	+42.0	+42.0	242
29.0	52	+4.0	163	+4.1	+8.2	+10.3	+14.6	+24.3	+29.0	+35.7	+39.4	+40.7	+40.0	+41.0	250
30.0	-41	+7.0	256	+10.0	+11.0	+18.1	+25.5	+29.7	+34.8	+35.9	+40.0	+40.5	+41.0	+41.0	250

IRIG RANGE REFERENCE ATMOSPHERE, DECEMBER TABLE II.1.2

STATION				LOCATION				PERIOD OF DATA				SCALAR WINDS					
LAUNCH SITE-FORT GREENLY		ALT. (km)		ELEVATION MSL (meters)		LATITUDE		LONGITUDE		JAN 1956 TO JAN 1961		FORT GREENLY MISSILE RANGE LAUNCH SITE					
NO.	DIR. (deg)	MIN. OBS.	DIR. SPEED (deg)	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0	MAX SPEED (deg)		
SFC	595	+0.0	+0.0	+0.0	+0.3	+0.8	+1.6	+2.9	+5.3	+8.4	+10.1	+12.9	+13.7	+4.5	+8.0		
0.5	580	+0.0	+0.0	+0.1	+1.0	+1.8	+3.3	+5.6	+8.8	+12.9	+15.4	+15.4	+19.3	+26.0	93		
1.0	572	+0.0	+0.0	+0.3	+1.3	+2.0	+3.6	+6.4	+9.9	+14.4	+17.6	+21.0	+22.8	+30.0	108		
1.5	562	+0.0	+0.0	+0.2	+0.6	+1.2	+2.1	+4.0	+7.3	+11.2	+15.2	+17.6	+21.1	+24.8	+28.0		
2.0	537	+0.0	+0.0	+0.2	+0.7	+1.6	+2.5	+4.4	+7.6	+12.0	+16.3	+18.6	+21.0	+25.2	+30.0	78	
2.5	520	+0.0	+0.0	+0.4	+1.2	+1.9	+2.9	+5.2	+8.4	+12.3	+16.6	+19.3	+22.1	+24.6	+32.0		
3.0	509	+0.0	+0.0	+0.4	+1.2	+1.9	+2.9	+5.2	+8.4	+12.3	+16.6	+19.3	+22.1	+24.6	+32.0		
4.0	460	+0.0	+0.0	+0.5	+1.1	+2.0	+3.0	+5.4	+9.4	+13.4	+18.0	+22.5	+27.2	+30.4	+40.0	16	
5.0	423	+0.0	+0.0	+0.5	+1.3	+2.3	+3.8	+7.1	+11.0	+16.0	+23.4	+27.4	+33.1	+35.3	+49.0	302	
6.0	405	+0.0	+0.0	+0.5	+1.5	+2.2	+3.1	+4.3	+8.7	+12.5	+18.4	+26.0	+32.2	+38.3	+40.9	+58.0	308
7.0	392	+0.0	+0.0	+1.4	+3.0	+4.1	+5.6	+8.6	+14.1	+21.2	+29.0	+33.1	+40.5	+54.0	+66.0		
8.0	378	+0.0	+0.0	+1.4	+2.3	+3.4	+5.1	+9.2	+14.7	+24.1	+32.8	+38.3	+48.3	+55.6	+65.0		
9.0	361	+1.0	83	+1.5	+2.5	+3.6	+5.2	+8.5	+14.1	+22.9	+31.7	+36.3	+47.7	+54.3	+88.0		
10.0	350	+1.0	268	+2.0	+2.8	+3.7	+5.8	+9.1	+14.2	+20.7	+29.0	+39.7	+49.0	+54.5	+93.0		
11.0	338	+2.0	8	+2.5	+3.3	+4.6	+6.1	+9.8	+14.3	+20.6	+28.0	+33.1	+45.2	+52.6	+71.0		
12.0	321	+2.0	207	+3.3	+4.1	+5.2	+6.9	+10.2	+14.9	+20.0	+26.8	+31.6	+37.6	+43.7	+63.0		
13.0	305	+2.0	+2.0	+2.0	+4.6	+6.2	+7.8	+11.2	+15.7	+20.7	+26.5	+29.8	+33.5	+36.9	+45.0		
14.0	288	+2.0	+3.8	+5.3	+6.8	+8.7	+12.1	+16.0	+20.7	+27.0	+30.3	+32.8	+37.1	+40.0			
15.0	273	+0.0	+0.8	+4.5	+7.1	+9.0	+12.0	+16.8	+22.8	+28.3	+31.5	+35.2	+37.6	+40.0			
16.0	260	+1.0	191	+3.6	+5.9	+7.5	+8.8	+12.3	+18.0	+25.0	+31.6	+34.3	+36.0	+38.4	+42.0		
17.0	247	+2.0	200	+2.7	+4.8	+6.8	+8.7	+13.3	+19.4	+27.1	+32.0	+35.5	+37.4	+38.7	+40.0		
18.0	240	+2.0	170	+3.1	+4.2	+6.2	+9.3	+13.3	+21.2	+30.0	+37.0	+40.4	+42.8	+44.3	+51.0		
19.0	225	+3.0	+2.0	+4.2	+5.5	+7.5	+13.1	+21.4	+29.5	+37.8	+43.2	+46.2	+47.7	+51.0	308		
20.0	208	+2.0	350	+3.0	+3.9	+5.3	+6.8	+13.2	+22.1	+31.1	+40.2	+45.1	+49.1	+51.4	+58.0	321	
21.0	187	+0.0	+2.0	+3.1	+5.1	+6.4	+11.7	+22.1	+30.9	+45.1	+49.6	+52.7	+55.1	+62.0			
22.0	170	+2.0	+2.0	+3.4	+5.8	+7.2	+11.6	+21.0	+32.6	+43.0	+52.2	+56.0	+59.3	+64.0			
23.0	150	+2.0	271	+2.2	+3.1	+4.7	+7.1	+11.0	+20.2	+33.9	+44.0	+52.2	+59.5	+64.2	+65.0		
24.0	129	+2.0	+2.0	+3.2	+7.1	+11.2	+21.8	+34.2	+48.0	+56.1	+68.0	+70.7	+79.0	+80.5			
25.0	107	+1.0	+1.4	+3.1	+6.3	+11.8	+22.1	+34.8	+54.1	+60.6	+67.2	+67.9	+79.0	+81.0			
26.0	78	+2.0	+2.0	+2.9	+5.8	+13.5	+23.0	+35.5	+55.0	+73.1	+76.2	+79.2	+80.0	+81.2			
27.0	60	+2.0	+2.0	+3.0	+10.0	+17.0	+24.0	+33.5	+49.0	+62.6	+75.3	+76.0	+78.5	+81.0			
28.0	42	+3.0	+3.0	+13.0	+13.0	+17.5	+28.0	+34.5	+56.7	+64.9	+78.0	+78.5	+79.0	+81.0			
29.0	22	+4.0	220	+13.0	+13.5	+23.5	+32.5	+39.5	+64.7	+67.8	+80.4	+80.7	+81.0	+81.0			
30.0	9	+15.0	229	+13.0	+25.2	+36.2	+37.7	+75.0	+75.7	+75.7	+75.7	+75.7	+75.7	+75.7	+76.0		

IRIG RANGE REFERENCE ATMOSPHERE, ANNUAL

TABLE II.13

STATION	ELEVATION MSL (meters)			LOCATION			PERIOD OF DATA			SCALAR WINDS						
	NO.	MIN.	DIR.	LATITUDE	LONGITUDE		JAN 1956 TO JAN 1961			FORT GREELY	RANGE	MISSILE LAUNCH SITE				
LAUNCH SITE-FORT GREELY	392	63° 59' N	145° 43' W				UNITS: WIND SPEED - m/sec									
ALT. (km)	NO.	MIN.	DIR.	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0				
MSL (m)	OBS.	SPEED	(deg)													
SFC	7085	+0.0		+0.1	+0.4	+1.0	+0.1	+1.8	+3.2	+4.5	+5.3	+6.6	+7.7	+31.0	220	
0.5	6911	+0.0		+0.1	+0.3	+1.1	+2.0	+3.7	+5.8	+8.5	+10.0	+11.8	+13.8	+25.0	270	
1.0	6803	+0.0		+0.1	+0.6	+1.5	+2.8	+4.9	+7.9	+11.3	+13.7	+16.2	+18.5	+37.0	265	
1.5	6659	+0.0		+0.2	+0.6	+1.1	+3.3	+5.5	+8.8	+12.4	+15.1	+18.2	+21.2	+70.0	70	
2.0	6447	+0.0		+0.2	+0.6	+1.2	+1.9	+3.6	+6.1	+9.5	+13.0	+15.9	+18.7	+22.0	+34.0	111
2.5	6260	+0.0		+0.2	+0.6	+1.3	+2.2	+4.0	+6.7	+10.3	+14.3	+17.0	+19.9	+22.8	+32.0	
3.0	6108	+0.0		+0.2	+0.7	+1.4	+2.3	+4.2	+7.0	+10.8	+15.0	+17.9	+20.6	+23.8	+42.0	294
4.0	5716	+0.0		+0.4	+1.0	+1.7	+2.7	+4.7	+7.9	+12.2	+16.8	+20.0	+23.4	+26.8	+43.0	320
5.0	5390	+0.0		+0.4	+1.1	+2.0	+3.0	+5.6	+9.3	+14.3	+20.1	+24.2	+28.6	+32.6	+55.0	320
6.0	5137	+0.0		+0.7	+1.4	+2.3	+3.5	+6.5	+10.8	+16.7	+23.5	+28.3	+34.0	+38.6	+58.0	308
7.0	4861	+0.0		+1.1	+2.0	+2.7	+4.1	+7.2	+12.3	+19.2	+26.9	+32.4	+39.4	+45.1	+77.0	310
8.0	4594	+0.0		+1.2	+2.0	+3.0	+6.6	+7.9	+13.3	+21.1	+30.1	+36.3	+43.4	+49.7	+98.0	314
9.0	4326	+0.0		+1.2	+2.1	+3.2	+4.7	+8.1	+13.5	+21.5	+31.0	+38.0	+45.4	+55.2	+88.0	282
10.0	4143	-	+0.0	+1.3	+2.1	+3.0	+4.4	+7.6	+12.8	+20.4	+29.8	+37.4	+45.4	+55.6	+93.0	282
11.0	3967	+0.0		+1.2	+2.6	+3.9	+6.8	+11.5	+18.3	+27.0	+34.5	+41.6	+52.3	+83.0	306	
12.0	3837	+0.0		+0.9	+1.4	+2.2	+3.4	+6.0	+10.2	+16.5	+24.5	+30.4	+37.9	+44.0	+79.0	286
13.0	3710	+0.0		+0.3	+1.1	+1.8	+2.9	+5.4	+9.4	+15.1	+22.5	+27.1	+33.5	+39.9	+52.0	272
14.0	3508	+0.0		+0.1	+0.1	+1.7	+2.7	+5.0	+8.6	+16.2	+21.2	+26.7	+32.1	+37.5	+62.0	305
15.0	3493	+0.0		+0.0	+0.7	+1.4	+2.4	+4.5	+8.0	+13.8	+21.5	+26.1	+31.7	+37.8	+56.0	290
16.0	-3405	+0.0		+0.5	+1.3	+2.2	+4.1	+7.6	+13.5	+22.0	+27.4	+33.5	+39.4	+62.0	310	
17.0	3311	+0.0		+0.2	+1.1	+1.9	+3.7	+6.9	+13.5	+22.4	+28.6	+34.6	+40.6	+68.0	293	
18.0	3223	+0.0		+0.3	+1.1	+1.8	+3.4	+6.7	+13.0	+22.9	+30.5	+37.3	+43.2	+76.0	300	
19.0	3081	+0.0		+0.2	+1.0	+1.7	+3.3	+6.2	+12.9	+23.7	+30.5	+39.2	+46.4	+69.0	290	
20.0	2941	+0.0		+0.2	+1.1	+3.1	+5.9	+12.5	+23.6	+32.1	+40.5	+48.2	+56.0	305		
21.0	2798	+0.0		+0.1	+1.0	+1.7	+3.3	+6.1	+12.4	+24.2	+34.0	+43.7	+50.8	+99.0	300	
22.0	2627	+0.0		+0.3	+1.1	+1.8	+3.5	+6.2	+12.2	+24.6	+35.6	+44.7	+54.1	+87.0	295	
23.0	2416	+0.0		+0.5	+1.3	+2.0	+3.7	+6.6	+12.9	+24.4	+36.5	+48.3	+54.9	+77.0	285	
24.0	2115	+0.0		+0.4	+1.2	+2.1	+3.9	+7.1	+13.1	+24.4	+37.4	+50.7	+58.4	+80.0	313	
25.0	1811	+0.0		+0.5	+1.4	+2.3	+4.4	+7.5	+13.9	+25.8	+38.7	+53.3	+63.2	+86.0	280	
26.0	1507	+0.0		+0.8	+1.4	+2.3	+4.6	+8.0	+14.3	+26.3	+37.6	+54.1	+65.9	+80.0		
27.0	1176	+0.0		+0.6	+1.5	+2.9	+5.0	+8.2	+15.0	+26.3	+35.1	+48.8	+62.1	+78.0		
28.0	-893	+0.0		+0.1	+1.0	+1.9	+3.0	+5.4	+8.8	+16.2	+27.5	+36.7	+49.6	+66.0	+96.0	300
29.0	635	+0.0		+0.2	+1.1	+2.2	+3.4	+6.1	+9.6	+17.6	+31.0	+53.1	+64.6	+87.0	295	
30.0	465	+0.0		+1.0	+1.8	+2.8	+4.1	+6.6	+10.2	+17.6	+29.8	+52.1	+62.3	+97.0	293	

**TABLE II.2.1**  
**IRIG RANGE REFERENCE ATMOSPHERE, JANUARY**

IRIG RANGE REFERENCE ATMOSPHERE, FEBRUARY TABLE III.2.2

STATION			LOCATION			PERIOD OF DATA			ZONAL WIND COMPONENTS			FORT GREENY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREENY			64° 49' N 63° 59' N 147° 52' W 145° 43' W			JAN 1956 TO JAN 1961			UNITS: WIND SPEED - m/sec					
ALT. (km)	NO. OBS.	MIN.	1.0	2.28	5.0	100	25.0	50.0	5.0	90.0	95.0	97.72	99.0	MAX.
SFC	58.6	-9.0	-6.5	-3.6	-2.8	-2.0	-0.9	-0.6	-0.2	+0.3	+1.7	+3.8	+7.0	+12.0
0.5	55.4	-18.0	-13.8	-11.5	-9.5	-8.1	-5.0	-2.4	-0.2	+2.7	+6.5	+8.6	+11.4	+18.0
1.0	53.8	-21.0	-19.1	-16.8	-14.2	-12.0	-6.7	-2.2	+2.1	+7.3	+9.9	+14.8	+17.4	+22.0
1.5	51.1	-25.0	-25.0	-19.8	-16.7	-16.0	-12.1	-5.3	-0.2	+4.8	+9.5	+12.8	+17.1	+25.0
2.0	49.6	-30.0	-30.0	-25.6	-19.9	-16.3	-11.3	-3.4	+0.8	+6.0	+10.6	+14.0	+18.3	+27.0
2.5	48.1	-31.0	-31.0	-21.1	-18.0	-15.1	-9.9	-2.2	+1.9	+7.3	+11.6	+14.8	+18.4	+29.0
3.0	47.1	-30.0	-30.0	-18.8	-17.0	-13.2	-8.6	-2.1	+2.2	+6.6	+13.9	+16.2	+18.5	+38.0
4.0	42.0	-19.0	-19.0	-17.7	-13.4	-9.5	-5.0	-0.4	+3.6	+9.7	+15.6	+19.8	+23.3	+28.0
5.0	39.2	-19.0	-19.0	-15.5	-12.5	-9.1	-4.2	+0.4	+5.7	+11.7	+18.5	+22.4	+25.0	+37.0
6.0	36.5	-18.0	-18.0	-14.3	-10.6	-7.2	-3.9	+0.2	+6.6	+13.5	+22.2	+25.6	+32.1	+35.3
7.0	32.6	-18.0	-18.0	-17.2	-12.8	-8.4	-4.5	+0.6	+6.3	+15.2	+24.8	+34.7	+44.7	+58.0
8.0	22.9	-19.0	-19.0	-17.0	-12.0	-8.0	-6.0	+1.6	+7.5	+16.4	+27.7	+31.0	+49.1	+70.0
9.0	27.9	-20.0	-20.0	-16.1	-10.6	-7.0	-2.5	+2.1	+7.1	+14.1	+25.0	+52.0	+47.6	+62.0
10.0	26.3	-21.0	-21.0	-11.3	-6.0	-3.9	-0.8	-1.9	+6.9	+14.6	+21.9	+36.8	+51.0	+63.3
11.0	25.5	-13.0	-11.2	-6.1	-2.2	-0.2	-0.2	+3.1	+7.1	+14.4	+22.2	+34.2	+45.1	+67.0
12.0	24.9	-31.0	-5.5	-3.3	-1.2	-0.1	-0.1	+2.7	+7.1	+14.4	+22.3	+38.2	+49.2	+56.0
13.0	24.2	-9.0	-3.7	-1.6	-0.7	-0.0	-0.3	+8.0	+14.1	+23.5	+22.9	+36.1	+49.5	+50.0
14.0	23.1	-3.0	-2.8	-1.2	-0.6	+0.1	+2.7	+7.7	+16.7	+24.2	+29.1	+36.6	+45.0	+50.0
15.0	22.6	-10.0	-3.3	-2.2	-0.8	+0.1	+3.1	+9.0	+15.5	+23.8	+21.9	+38.8	+41.7	+49.0
16.0	21.8	=6.0	-5.4	-2.3	-0.8	+0.3	+3.0	+8.1	+14.7	+24.5	+29.8	+37.3	+40.4	+52.0
17.0	20.8	-5.0	-1.9	-1.4	-0.5	+0.5	+4.0	+8.2	+15.8	+25.5	+30.8	+34.1	+35.9	+41.0
18.0	20.5	-5.0	-3.9	-2.1	-1.1	-0.0	+4.0	+8.4	+15.9	+25.5	+31.2	+36.1	+36.9	+41.0
19.0	19.0	-6.0	-4.5	-1.5	-0.9	+0.0	+3.2	+8.0	+15.5	+24.7	+28.7	+38.3	+41.1	+43.0
20.0	18.2	-8.0	-3.5	-2.7	-1.4	-1.1	+1.0	+9.2	+15.0	+23.9	+29.4	+33.9	+39.1	+43.0
21.0	17.0	-4.0	-3.2	-0.9	-0.4	+0.6	+4.1	+10.0	+16.0	+23.6	+28.2	+32.3	+34.3	+39.0
22.0	15.8	-6.0	-4.4	-1.4	-0.4	+1.5	+4.6	+9.7	+15.9	+24.5	+33.5	+37.1	+39.4	+48.0
23.0	14.6	-9.0	-1.8	-1.2	-0.3	+1.2	+4.7	+11.1	+15.8	+23.5	+31.6	+37.6	+41.7	+45.0
24.0	12.4	+0.0	-3.9	-0.9	-0.4	+0.0	+1.3	+4.6	+10.7	+25.7	+33.4	+44.0	+44.8	+46.0
25.0	10.2	-4.0	-3.1	-0.3	+0.7	+5.6	+10.5	+17.1	+24.8	+29.9	+39.6	+46.9	+51.0	+52.0
26.0	8.1	-4.0	-1.9	-0.8	-0.3	+1.0	+6.0	+16.0	+25.1	+42.5	+47.3	+55.1	+56.0	+56.0
27.0	6.6	-4.0	-3.4	-0.8	+0.4	+2.7	+9.0	+17.5	+33.1	+38.7	+46.4	+64.3	+65.0	+65.0
28.0	4.5	-1.0	-0.9	-0.3	-0.5	+3.0	+7.8	+16.9	+29.5	+40.7	+45.9	+82.5	+83.0	+83.0
29.0	2.8	-1.0	-0.8	-0.3	+1.0	+9.0	+13.5	+26.8	+48.9	+57.4	+57.7	+48.0	+58.0	+58.0
30.0	2.2	-2.0	-1.9	-1.3	+0.7	+9.0	+13.5	+26.8	+48.9	+57.4	+57.7	+48.0	+58.0	+58.0

IRIG RANGE REFERENCE ATMOSPHERE, MARCH

TABLE II.2.3

STATION	ELEVATION MSL (meters)		LOCATION		PERIOD OF DATA		ZONAL WIND COMPONENTS		FORT GREENE MISSILE RANGE LAUNCH SITE
	ALT. (km)	NO. OBS.	LATITUDE	LONGITUDE	JAN 1956 TO JAN 1961	UNITS: WIND SPEED - m/sec	MAX.		
LAUNCH SITE-FORT GREENE	392	63° 59' N	145° 43' W	CUMULATIVE	PERCENTAGE	FREQUENCY	99.0	97.72	99.0
			1.0	2.28	5.0	10.0	25.0	50.0	75.0
SFC	61.1	-8.0	-6.3	-4.6	-3.3	-2.1	-0.9	-0.2	+2.5
0.5	59.9	-15.0	-11.6	-10.0	-8.1	-6.7	-4.5	-2.1	+3.9
1.0	59.3	-21.0	-13.8	-12.6	-10.6	-9.2	-5.6	-2.5	+2.5
1.5	58.1	-24.0	-17.3	-14.8	-12.2	-10.3	-5.2	-1.4	+1.5
2.0	56.9	-29.0	-19.3	-16.7	-12.8	-10.3	-4.7	-0.7	+0.4
2.5	55.3	-25.0	-20.4	-16.6	-13.2	-9.4	-3.6	-0.2	+3.2
3.0	54.2	-27.0	-17.7	-14.6	-11.9	-7.9	-3.0	+0.1	+3.7
4.0	52.1	-24.0	-16.6	-14.1	-11.1	-7.4	-2.2	+1.0	+5.6
5.0	49.4	-23.0	-16.0	-13.1	-10.7	-7.1	-2.1	+2.5	+7.4
6.0	46.9	-34.0	-18.6	-16.0	-12.1	-7.9	-2.4	+2.9	+9.4
7.0	44.2	-25.0	-17.7	-15.6	-12.9	-8.1	-2.2	+3.8	+11.8
8.0	41.4	-21.0	-19.4	-15.5	-12.7	-8.1	-1.8	+5.2	+11.9
9.0	38.7	-24.0	-18.0	-15.5	-11.5	-9.7	-7.0	-1.2	+4.8
10.0	36.5	-21.0	-17.3	-10.6	-7.3	-5.1	-0.4	+6.0	+12.8
11.0	35.3	-15.0	-11.4	-6.9	-3.2	-3.2	-0.2	+6.0	+12.1
12.0	33.4	-19.0	-6.6	-5.4	-3.6	-1.3	-0.8	+6.3	+11.1
13.0	32.6	-7.0	-5.3	-3.9	-1.9	-0.6	-1.8	+6.2	+11.5
14.0	31.1	-6.0	-4.7	-3.7	-2.0	-0.7	+2.0	+5.9	+10.9
15.0	29.7	-6.0	-4.6	-3.4	-1.8	-0.6	-2.0	+6.3	+10.7
16.0	28.0	-14.0	-5.5	-3.3	-1.8	-0.4	+2.0	+6.5	+11.1
17.0	28.2	-17.0	-4.3	-3.1	-1.5	-0.5	+1.7	+6.2	+11.6
18.0	27.4	-5.0	-3.8	-2.9	-1.4	-0.6	+1.7	+6.6	+10.8
19.0	26.0	-4.0	-3.8	-3.2	-1.6	-0.7	+0.9	+6.2	+10.5
20.0	24.6	-5.0	-4.2	-3.4	-2.1	-1.0	+1.0	+5.6	+10.5
21.0	23.2	-6.0	-4.9	-4.1	-2.7	-1.5	+0.7	+5.1	+11.1
22.0	21.5	-6.0	-4.9	-3.6	-2.4	-1.0	+0.0	+5.0	+10.7
23.0	20.1	-8.0	-4.9	-4.3	-3.4	-1.9	-0.0	+4.2	+11.4
24.0	17.2	-7.0	-5.6	-4.7	-3.7	-2.7	-0.4	+4.1	+10.5
25.0	14.4	-8.0	-6.8	-6.2	-4.4	-3.3	-0.8	+3.7	+11.0
26.0	12.8	-14.0	-8.7	-7.0	-6.3	-4.8	-1.5	+4.0	+11.5
27.0	9.5	-10.0	-8.9	-7.8	-6.6	-3.4	+3.1	+9.6	+28.5
28.0	7.5	-10.0	-	-	-	-9.1	-5.3	+2.1	+11.2
29.0	3.5	-14.0	-	-	-	-8.8	-5.1	+4.5	+21.2
30.0	1.0	-13.2	-	-	-	-13.6	-5.1	+35.5	+44.5
						-3.5	-2.2	+16.0	+47.2

IRIG RANGE REFERENCE ATMOSPHERE, APRIL

TABLE III.2.4

STATION				ELEVATION MSL (meters)		LOCATION		PERIOD OF DATA		WIND ZONAL COMPONENTS				
FAIRBANKS, ALASKA				134		64° 49' N 147° 52' W		JAN 1956 TO JAN 1961		FORT GREELEY MISSILE RANGE LAUNCH SITE				
LAUNCH SITE-FORT GREENLY				392		63° 59' N 145° 43' W		UNITS: WIND SPEED - m/sec						
ALT. (km) MSL	NO. OBS.	MIN.	MAX.	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0
														MAX.
SFC	591	-8.0	-5.8	-5.0	-3.5	-2.4	-0.9	-0.5	-0.0	+2.0	+3.2	+4.8	+5.6	+10.0
0.5	577	-13.0	-10.2	-8.8	-7.0	-5.8	-3.5	-1.1	+0.8	+3.2	+5.5	+8.3	+10.0	+14.0
1.0	572	-15.0	-11.8	-9.9	-8.3	-7.0	-3.9	-0.8	+1.6	+4.9	+7.7	+10.4	+13.8	+36.0
1.5	569	-65.0	-12.1	-9.8	-8.0	-6.5	-3.2	-0.4	+2.9	+6.5	+8.9	+12.0	+17.3	+27.0
2.0	563	-16.0	-12.4	-10.5	-8.2	-5.8	-2.4	-0.0	+4.0	+8.5	+11.1	+14.2	+19.7	+24.0
2.5	549	-16.0	-12.5	-10.4	-7.2	-4.7	-2.1	+0.4	+4.5	+9.0	+11.9	+16.4	+20.2	+30.0
3.0	538	-15.0	-11.3	-9.2	-6.4	-4.4	-1.8	+0.9	+4.8	+10.3	+13.2	+17.7	+22.6	+27.0
4.0	515	-13.0	-11.3	-9.7	-6.6	-4.4	-1.1	+1.7	+6.1	+12.5	+15.7	+19.6	+23.9	+34.0
5.0	497	-12.0	-11.2	-9.4	-7.6	-5.4	-1.3	+2.3	+8.1	+14.7	+19.3	+23.8	+28.0	+41.0
6.0	486	-18.0	-15.3	-12.5	-9.0	-6.2	-2.0	+2.4	+9.2	+18.0	+22.5	+28.0	+34.1	+44.0
7.0	453	-27.0	-19.7	-14.2	-10.7	-6.8	-1.9	+2.5	+10.2	+19.9	+26.7	+33.4	+37.2	+49.0
8.0	426	-27.0	-20.7	-17.1	-9.8	-6.8	-2.3	+3.0	+11.2	+23.3	+30.6	+35.7	+42.7	+60.0
9.0	400	-29.0	-20.4	-13.8	-9.1	-5.8	-1.6	+3.2	+11.3	+23.5	+31.1	+35.4	+43.0	+65.0
10.0	383	-25.0	-18.0	-13.1	-6.9	-3.9	-0.6	+3.1	+9.6	+23.3	+28.7	+34.2	+47.1	+57.0
11.0	364	-14.0	-9.7	-7.5	-5.7	-2.7	-0.7	+0.0	+3.2	+9.1	+17.5	+24.8	+30.7	+53.0
12.0	354	-15.0	-10.4	-6.6	-4.4	-2.1	+0.1	+3.2	+8.1	+14.3	+21.3	+28.4	+36.4	+41.0
13.0	345	-16.0	-7.8	-6.6	-4.3	-2.2	-0.2	+3.1	+7.3	+13.8	+20.5	+27.1	+32.2	+43.0
14.0	335	-13.0	-7.7	-7.0	-4.3	-1.8	+0.1	+2.9	+6.5	+13.3	+19.1	+25.3	+28.8	+37.0
15.0	328	-16.0	-8.8	-6.8	-4.6	-2.3	-0.1	+2.7	+6.3	+11.8	+16.4	+26.5	+28.8	+34.0
16.0	323	-12.0	-8.7	-5.9	-4.7	-2.5	-0.2	+2.2	+5.3	+11.7	+16.5	+22.8	+26.9	+46.0
17.0	319	-14.0	-8.4	-5.4	-4.5	-2.3	-0.7	+1.5	+4.6	+10.2	+18.0	+23.7	+24.7	+30.0
18.0	316	-9.0	-7.9	-5.9	-4.0	-2.6	-0.8	+1.1	+4.3	+11.3	+18.6	+22.8	+26.4	+40.0
19.0	307	-9.0	-6.9	-6.0	-4.8	-3.7	-1.5	+0.9	+3.7	+10.5	+19.3	+25.0	+27.9	+38.0
20.0	293	-12.0	-7.5	-6.7	-4.0	-2.3	-0.0	+3.4	+9.7	+18.7	+26.1	+28.1	+32.0	+35.0
21.0	280	-10.0	-8.3	-7.8	-5.2	-2.9	-0.3	+2.9	+10.0	+20.5	+25.6	+29.2	+35.0	+35.0
22.0	262	-13.0	-10.6	-8.8	-7.8	-6.8	-0.2	+2.5	+2.5	+13.1	+19.9	+26.5	+28.3	+31.0
23.0	237	-12.0	-11.8	-10.7	-9.8	-8.6	-0.5	+0.5	+0.8	+14.7	+20.3	+25.2	+28.3	+30.0
24.0	196	-20.0	-14.3	-12.3	-10.5	-9.5	-5.4	-1.1	+3.1	+16.4	+25.6	+32.5	+37.0	+46.0
25.0	159	-18.0	-17.9	-14.5	-12.5	-10.8	-6.8	-1.2	+4.2	+19.0	+27.0	+30.7	+34.4	+40.0
26.0	126	-24.0	-22.7	-20.1	-15.7	-14.4	-9.4	-2.0	+2.8	+18.6	+25.7	+32.5	+37.7	+40.0
27.0	100	-30.0	-22.9	-21.7	-20.0	-17.1	-12.4	-3.3	+3.5	+23.0	+25.0	+28.7	+35.0	+36.0
28.0	75	-36.0	-24.2	-22.1	-20.2	-16.2	-4.1	+3.1	+20.7	+27.2	+33.2	+37.2	+38.0	+38.0
29.0	48	-38.0	-25.9	-24.5	-21.7	-16.4	-4.4	+2.0	+22.2	+25.6	+26.9	+33.5	+34.0	+34.0
30.0	31	-29.0	-28.4	-26.4	-21.7	-19.6	-5.4	-0.3	+8.9	+14.4	+23.2	+23.6	+24.0	+24.0

# IRIG RANGE REFERENCE ATMOSPHERE, MAY

TABLE II.2.5

STATION				LOCATION				PERIOD OF DATA				WIND ZONAL COMPONENTS				
FAIRBANKS, ALASKA				64° 49' N 147° 52' W				JAN 1956 TO JAN 1961				FORT GREENLY MISSILE RANGE LAUNCH SITE				
LAUNCH SITE-FORT GREENLY				39° 59' N 145° 43' W				UNITS: WIND SPEED - m/sec								
ALT. (km)	NO. 038.	MIN	MAX	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	CUMULATIVE PERCENTAGE	FREQUENCY	95.0	97.72	99.0
MSL																MAX.
SFC	60.6	-9.0	-6.4	-5.7	-4.7	-3.3	-1.3	-0.4	+0.4	+2.6	+3.5	+4.6	+5.6	+6.0	+8.0	
0.5	60.2	-16.0	-10.8	-9.6	-7.9	-6.4	-5.7	-5.7	+1.0	+4.7	+6.7	+8.1	+9.4	+16.0	+16.0	
1.0	50.7	-16.0	-12.3	-10.3	-8.0	-6.6	-5.9	-5.9	+0.5	+2.6	+5.8	+8.0	+10.2	+12.5	+19.0	
1.5	50.2	-12.6	-10.4	-9.4	-7.7	-5.6	-5.6	-5.3	+0.3	+2.8	+5.8	+8.3	+10.3	+13.0	+23.0	
2.0	50.1	-17.0	-12.2	-10.1	-7.7	-5.0	-5.0	-5.1	+0.1	+2.6	+5.7	+9.1	+12.9	+15.5	+26.0	
2.5	50.6	-18.2	-16.4	-11.7	-7.7	-5.5	-5.5	-5.4	+0.2	+2.4	+6.2	+9.2	+12.4	+16.4	+22.0	
3.0	50.6	-18.9	-15.1	-12.1	-7.1	-5.7	-5.7	-5.2	+0.7	+1.0	+7.7	+10.6	+13.5	+16.2	+23.0	
4.0	52.3	-23.0	-16.3	-12.0	-8.7	-6.1	-5.1	-5.1	+0.9	+4.1	+9.5	+12.3	+15.5	+18.5	+25.0	
5.0	60.6	-16.0	-15.0	-12.9	-9.1	-6.7	-5.4	-5.4	+0.0	+4.0	+6.9	+10.7	+15.1	+20.2	+28.0	
6.0	47.6	-24.0	-17.6	-15.2	-10.8	-6.9	-5.6	-5.6	+0.9	+2.9	+6.0	+12.9	+18.6	+23.7	+36.1	
7.0	46.0	-29.0	-20.7	-17.5	-11.9	-10.9	-5.9	-5.9	+0.9	+7.7	+14.3	+21.2	+26.7	+34.5	+38.0	
8.0	41.4	-46.0	-25.0	-21.3	-16.4	-10.4	-4.0	-4.0	+12.1	+9.5	+17.6	+25.4	+35.0	+39.6	+42.0	
9.0	40.8	46.0	-25.9	-22.8	-16.5	-10.4	-4.1	-4.1	+0.6	+10.3	+19.3	+26.6	+32.1	+35.6	+42.0	
10.0	39.6	-30.0	-23.6	-21.0	-12.0	-8.1	-3.0	-3.0	+1.4	+9.3	+19.3	+25.1	+31.5	+36.6	+49.0	
11.0	37.1	-26.0	-17.6	-13.7	-10.1	-6.4	-2.1	-2.1	+1.5	+7.4	+16.6	+21.1	+26.7	+33.1	+39.0	
12.0	35.1	-17.0	-14.4	-9.7	-6.6	-4.6	-1.2	-1.2	+1.3	+6.1	+12.6	+16.4	+21.4	+26.2	+33.0	
13.0	16.2	-11.0	-10.2	-6.1	-5.4	-3.8	-1.4	-1.4	+0.9	+5.0	+9.7	+12.9	+15.6	+16.6	+33.0	
14.0	32.9	-9.0	-7.7	-6.0	-4.0	-3.6	-1.1	-1.1	+0.2	+0.2	+6.2	+10.2	+10.2	+13.8	+15.3	
15.0	12.2	-19.0	-9.2	-6.9	-5.3	-3.2	-1.2	-1.2	+0.4	+3.0	+6.2	+8.9	+11.6	+12.0	+22.0	
16.0	31.4	-11.0	-7.0	-5.4	-4.4	-3.4	-1.4	-1.4	+0.0	+2.5	+5.2	+7.4	+11.6	+13.9	+21.0	
17.0	30.7	-9.0	-6.9	-4.6	-3.0	-3.2	-1.5	-1.5	+0.3	+1.1	+4.4	+6.3	+10.0	+11.3	+22.0	
18.0	29.5	-9.0	-7.0	-6.2	-5.0	-3.7	-2.1	-2.1	+0.5	+0.8	+2.9	+5.1	+7.6	+10.6	+12.0	
19.0	26.0	-7.0	-5.9	-4.4	-3.5	-2.5	-0.7	-0.7	+0.3	+2.6	+4.2	+6.7	+9.5	+12.0	+12.0	
20.0	22.4	-26.0	-9.0	-7.4	-6.4	-5.1	-2.4	-2.4	+0.2	+1.5	+2.9	+4.9	+8.3	+12.0	+12.0	
21.0	21.9	-13.0	-7.0	-6.3	-5.0	-4.1	-2.0	-2.0	+0.4	+1.2	+2.4	+3.6	+5.7	+10.0	+10.0	
22.0	22.0	-9.0	-0.0	-6.5	-4.0	-4.0	-0.6	-0.6	+1.0	+2.0	+2.0	+4.2	+5.8	+10.0	+10.0	
23.0	22.3	-14.0	-11.7	-9.0	-7.1	-5.7	-3.4	-3.4	+0.7	+1.0	+1.0	+3.4	+4.0	+6.0	+7.0	
24.0	19.7	-16.0	-15.0	-11.0	-9.0	-8.6	-6.6	-6.6	+1.3	-0.0	+1.0	+2.9	+4.6	+6.1	+7.0	
25.0	17.4	-19.0	-14.6	-14.0	-13.0	-9.0	-7.7	-7.7	+0.8	-2.4	-0.1	+1.5	+4.5	+6.1	+7.0	
26.0	15.0	-22.0	-10.5	-13.4	-13.4	-11.3	-9.6	-9.6	+0.2	+2.7	-0.3	+1.2	+2.6	+4.5	+6.0	
27.0	10.9	-17.0	-14.7	-13.5	-11.8	-11.0	-9.2	-9.2	+0.6	+0.7	+0.2	+0.2	+2.5	+3.4	+4.0	
28.0	8.6	-17.0	-17.0	-15.8	-14.1	-10.4	-6.4	-6.4	+0.9	+1.0	+0.9	+1.1	+4.5	+5.1	+6.0	
29.0	5.9	-16.0	-17.0	-17.0	-16.3	-11.1	-6.2	-6.2	+0.2	+1.9	-0.4	+0.7	+0.7	+1.0	+1.0	
30.0	4.5	-19.0	-16.9	-16.9	-16.9	-11.7	-6.4	-6.4	+0.2	+0.4	+0.2	+0.4	+0.7	+0.7	+1.0	

IRIG RANGE REFERENCE ATMOSPHERE, JUNE

TABLE II.2.6

STATION			ELEVATION MSL (meters)			LOCATION LATITUDE LONGITUDE			PERIOD OF DATA			WIND ZONAL COMPONENTS			FORT GREELY MISSILE RANGE LAUNCH SITE		
FAIRBANKS, ALASKA			13.4			64° 49' N 147° 52' W			JAN 1956 TO JAN 1961			UNITS: WIND SPEED - m/sec					
ALT. (km)	NO. OBS.	MIN.	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0	MAX.			
MSL																	
LAUNCH SITE-FORT GREENLY																	
597	-10.0	-6.6	-3.4	-1.8	-0.8	-0.3	+0.8	+3.2	+4.5	+5.5	+6.3	+8.0					
585	-12.0	-8.5	-7.4	-6.0	-4.3	-1.8	+0.0	+2.9	+5.8	+7.3	+9.1	+9.9	+16.0				
582	-12.0	-10.5	-8.2	-6.5	-4.6	-1.7	+0.2	+1.1	+6.2	+8.1	+9.9	+11.7	+20.7				
574	-11.0	-9.6	-7.1	-6.0	-4.2	-1.9	+0.0	+2.8	+5.8	+8.3	+10.7	+12.1	+16.0				
561	-12.0	-10.3	-9.6	-6.4	-4.6	-1.7	+0.0	+2.9	+5.9	+8.2	+9.8	+12.7	+16.0				
565	-14.0	-10.5	-8.7	-7.3	-5.9	-2.0	-0.0	+2.9	+6.1	+8.6	+10.3	+13.5	+19.0				
570	-17.0	-11.8	-9.7	-8.7	-6.7	-4.6	-2.0	-0.0	+3.0	+6.1	+8.9	+11.9	+15.3	+19.0			
506	-14.0	-10.6	-9.7	-8.7	-7.4	-5.0	-2.3	+0.0	+2.9	+7.1	+10.1	+13.2	+15.0	+23.0			
483	-19.0	-10.6	-9.8	-8.4	-6.3	-4.6	-2.3	+0.0	+4.0	+8.7	+11.7	+14.6	+18.0	+27.0			
486	-24.0	-14.1	-12.3	-10.9	-8.7	-6.7	-3.2	+0.1	+4.6	+10.6	+14.5	+19.1	+20.6	+42.0			
446	-25.0	-18.1	-16.2	-12.7	-10.9	-8.9	-3.7	+0.3	+6.0	+12.5	+16.5	+21.4	+25.7	+30.0			
427	-28.0	-21.5	-18.1	-13.6	-10.6	-9.6	-3.9	+0.6	+7.2	+13.8	+18.6	+23.7	+26.7	+36.0			
407	-29.0	-22.9	-18.7	-15.1	-10.3	-9.7	-4.2	+0.5	+7.8	+16.3	+21.2	+25.3	+29.0	+51.0			
390	-27.0	-18.0	-15.6	-13.6	-9.7	-9.7	-4.2	+0.5	+7.4	+14.3	+20.9	+25.0	+29.1	+39.0			
378	-21.0	-18.2	-14.6	-11.0	-7.6	-7.6	-2.8	+0.5	+5.4	+11.3	+19.1	+23.1	+30.6	+35.0			
365	-18.0	-13.3	-11.8	-8.9	-6.6	-6.6	-2.5	-0.0	+3.6	+8.6	+14.9	+20.6	+23.6	+45.0			
356	-16.0	-13.2	-9.2	-7.3	-5.7	-2.9	-0.2	+2.6	+5.8	+8.8	+15.2	+19.2	+32.0				
350	-11.2	-9.8	-8.0	-7.8	-5.1	-1.8	-0.3	+1.9	+4.2	+7.1	+9.6	+14.5	+35.0				
345	-10.0	-9.5	-8.2	-6.5	-4.5	-2.2	-0.5	+0.9	+3.2	+6.7	+10.6	+14.6	+23.0				
338	-12.0	-7.5	-5.7	-4.5	-2.5	-0.7	+0.5	+0.5	+2.0	+3.5	+6.8	+8.3	+24.0				
330	-12.0	-7.6	-6.6	-5.9	-4.9	-2.9	-0.9	-0.1	+1.4	+2.4	+4.6	+5.9	+19.0				
321	-11.0	-7.5	-6.0	-5.9	-5.1	-3.4	-1.6	-0.3	+0.5	+1.8	+3.3	+4.7	+10.0				
314	-13.0	-9.2	-8.2	-6.7	-5.7	-4.0	-2.2	-0.8	+0.0	+1.9	+3.2	+4.8	+7.0				
302	-16.0	-11.4	-8.5	-7.3	-6.5	-4.7	-2.7	-1.4	-0.4	-0.9	+0.7	+1.9	+8.0				
284	-20.0	-12.1	-9.2	-7.1	-5.4	-3.6	-1.4	-0.5	-0.5	-0.8	-0.1	+0.8	+1.7	+10.0			
269	-12.0	-10.1	-8.9	-8.1	-7.4	-5.8	-4.3	-2.8	-1.3	-0.4	-0.4	-0.4	+1.7	+10.0			
246	-28.0	-13.5	-10.4	-9.7	-9.0	-6.9	-5.2	-3.4	-1.8	-1.0	-0.3	-0.3	-0.0	+9.0			
222	-16.0	-14.7	-12.9	-11.3	-9.7	-7.8	-5.8	-4.1	-2.3	-1.9	-0.1	-0.1	+0.8	+9.0			
199	-28.0	-13.0	-11.6	-10.4	-8.5	-6.5	-4.8	-3.0	-1.3	-0.3	-0.3	-0.3	+1.0	+9.0			
168	-22.0	-16.0	-13.4	-11.6	-10.8	-9.0	-7.6	-5.7	-3.7	-2.7	-0.9	-0.9	-0.4	+4.2	+10.0		
150	-24.0	-14.8	-13.6	-11.9	-10.8	-9.8	-8.2	-6.7	-5.7	-3.3	-1.4	-0.4	-0.4	+10.0			
120	-20.0	-15.7	-14.8	-14.0	-11.9	-10.2	-8.3	-6.3	-4.3	-2.0	-0.9	-0.9	-0.9	+12.0			
104	-18.0	-16.9	-14.8	-13.6	-12.5	-10.7	-8.7	-6.6	-4.1	-2.0	-0.1	-0.1	-0.1	+14.4	+15.0		
83	-20.0	-16.1	-14.7	-13.8	-12.1	-9.4	-7.1	-5.5	-3.5	-1.1	-0.1	-0.1	-0.1	+16.1	+17.0		

IRIG RANGE REFERENCE ATMOSPHERE, JULY

TABLE II.2.7

STATION				LOCATION				PERIOD OF DATA				ZONAL WIND COMPONENTS			
				LATITUDE		LONGITUDE		JAN 1956 TO JAN 1961				FORT GREENLY MISSILE RANGE LAUNCH SITE			
LAUNCH SITE-FORT GREENLY				392	63° 59' N	145° 43' W		CUMULATIVE PERCENTAGE FREQUENCY				WIND SPEED - m/sec			
ALT. (km)	NO. OBS.	MIN.	MSL (meters)	1.0	2.28	5.0	100	25.0	50.0	75.0	90.0	95.0	97.72	99.0	MAX.
SFC	594	-6.0	-5.0	-3.9	-2.8	-1.1	-0.8	-0.2	+1.5	+3.5	+4.6	+5.9	+7.4	+19.0	
-0.5	591	-11.0	-8.5	-5.8	-4.5	-2.9	-0.7	.3	+4.3	+6.9	+8.3	+9.5	+11.6	+17.0	
1.0	585	-14.0	-8.0	-7.0	-5.3	-3.1	-0.6	+2.2	+5.6	+9.1	+11.3	+12.7	+16.0	+19.0	
-1.5	573	-12.0	-8.7	-6.6	-5.0	-3.4	-0.6	+2.2	+5.9	+9.3	+11.2	+12.9	+16.4	+22.0	
2.0	557	-13.0	-10.2	-7.9	-5.4	-3.4	-0.6	+2.2	+5.7	+9.2	+11.0	+12.7	+14.6	+20.0	
-2.5	561	-14.0	-10.3	-8.3	-6.2	-3.6	-0.5	+2.2	+5.8	+9.4	+11.4	+13.5	+14.7	+17.0	
3.0	528	-12.0	-9.5	-7.7	-6.2	-4.0	-0.6	+2.4	+5.7	+9.6	+11.7	+14.4	+15.7	+20.0	
-4.0	494	-11.0	-9.5	-7.8	-6.4	-4.1	-0.8	+2.0	+6.5	+10.5	+12.7	+14.3	+17.0	+19.0	
5.0	464	-12.0	-10.4	-8.6	-6.7	-5.2	-1.1	+1.8	+6.8	+11.3	+13.6	+15.3	+18.1	+24.0	
-6.0	445	-17.0	-11.6	-10.5	-8.6	-6.3	-2.1	+1.8	+7.3	+12.2	+14.2	+16.9	+18.6	+23.0	
7.0	424	-19.0	-12.8	-11.6	-10.6	-8.0	-2.5	+2.2	+8.1	+13.4	+16.4	+19.3	+23.9	+32.0	
-8.0	403	-30.0	-18.5	-17.2	-12.9	-9.2	-3.4	+1.5	+8.1	+15.3	+18.9	+21.7	+23.3	+31.0	
9.0	389	-24.0	-21.1	-18.0	-15.7	-11.2	-3.6	+1.6	+9.4	+16.4	+21.1	+26.0	+28.7	+35.0	
-10.0	379	-28.0	-22.4	-19.1	-15.0	-11.0	-4.1	+1.5	+9.6	+18.0	+23.3	+26.6	+32.6	+66.0	
11.0	365	-30.0	-22.1	-15.6	-12.6	-8.8	-3.3	+1.6	+8.9	+16.5	+21.9	+24.9	+30.3	+46.0	
-12.0	360	-33.0	-17.1	-12.7	-9.0	-6.0	-2.3	+1.2	+6.8	+12.0	+17.0	+19.0	+24.5	+33.0	
13.0	345	-15.0	-9.8	-8.7	-6.6	-4.3	-1.8	+1.1	+5.9	+10.4	+13.1	+16.1	+19.2	+22.0	
-14.0	340	-11.0	-7.9	-7.2	-5.5	-4.2	-1.4	+0.7	+4.3	+8.6	+11.5	+14.0	+15.8	+23.0	
15.0	333	-9.0	-7.4	-6.1	-4.8	-3.5	-1.0	+0.4	+3.7	+6.7	+8.9	+10.8	+12.8	+16.0	
-16.0	330	-11.0	-6.9	-5.9	-5.0	-3.3	-1.3	+0.1	+3.0	+6.3	+7.7	+9.4	+11.7	+16.0	
17.0	321	-10.0	-6.9	-6.3	-4.7	-3.3	-1.5	-0.1	+2.1	+4.5	+5.8	+7.7	+12.7	+15.0	
-18.0	313	-10.2	-8.2	-6.9	-5.5	-3.9	-1.7	-0.3	+1.3	+4.4	+6.4	+6.6	+9.8	+19.0	
19.0	307	-9.0	-6.5	-7.5	-5.4	-3.9	-2.4	-0.7	+0.4	+2.2	+3.8	+5.5	+6.4	+10.0	
-20.0	292	-11.0	-8.5	-7.0	-6.2	-4.7	-2.9	-1.2	-0.2	+1.2	+2.6	+3.8	+6.3	+8.0	
21.0	294	-10.0	-8.0	-7.0	-6.3	-5.5	-3.8	-2.1	-0.6	+0.4	+1.4	+3.2	+5.3	+7.0	
-22.0	284	-11.0	-6.5	-7.6	-6.9	-6.3	-4.5	-3.0	-1.2	-0.9	+1.6	+2.8	+5.0	+8.0	
23.0	266	-12.0	-10.6	-8.9	-7.9	-7.0	-5.6	-4.0	-2.2	-0.8	-0.8	+1.9	+4.4	+6.0	
-24.0	252	-12.0	-10.6	-9.2	-8.1	-6.3	-4.5	-2.7	-1.0	-0.2	-0.2	+0.5	+1.1	+2.0	
25.0	228	-12.0	-11.8	-10.6	-9.3	-8.3	-6.8	-5.0	-3.4	-1.5	-0.3	+1.2	+1.9	+6.0	
-26.0	194	-13.0	-12.5	-11.6	-10.4	-9.0	-7.8	-6.1	-4.1	-2.0	-0.8	-0.0	+1.0	+2.0	
27.0	166	-13.0	-11.3	-10.7	-10.2	-9.4	-8.0	-6.5	-4.9	-3.3	-1.8	+1.2	+2.4	+3.0	
-28.0	138	-15.0	-13.6	-11.9	-10.9	-10.2	-8.7	-7.2	-5.7	-3.7	-2.7	-1.5	-0.3	+5.0	
29.0	110	-14.0	-12.9	-12.4	-11.7	-11.0	-9.7	-7.4	-5.8	-4.1	-3.6	-0.5	+1.9	+4.0	
-30.0	94	-13.0	-11.0	-12.9	-12.4	-12.3	-10.3	-9.3	-8.4	-4.3	-3.4	-1.5	+4.0	+5.0	

# IRIG RANGE REFERENCE ATMOSPHERE, AUGUST

TABLE II.2.8

STATION				LOCATION				PERIOD OF DATA				WIND ZONAL COMPONENTS				
FAIRBANKS, ALASKA		LAUNCH SITE-FORT GREENLY		64° 49' N		147° 52' W		JAN 1956 TO JAN 1961		FORT GREENLY MISSILE RANGE LAUNCH SITE						
ALT. (km)	NO. OBS.	MIN.						CUMULATIVE PERCENT	FREQUENCY							
M	SL			1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0	MAX.	
0.5	565	-9.0	SFC	-7.0	-4.4	-3.7	-3.0	-2.2	-1.1	-0.3	+0.8	+2.7	+3.9	+5.8	+6.6	+9.0
1.0	554	-15.0		-7.6	-6.8	-5.7	-4.3	-2.1	-0.2	+2.5	+6.1	+8.5	+11.3	+13.1	+16.0	
1.5	537	-11.0		-8.6	-7.7	-6.0	-4.6	-1.9	+0.5	+3.7	+8.0	+10.5	+14.8	+17.2	+24.0	
2.0	520	-12.0		-9.8	-7.6	-5.9	-4.1	-1.4	+1.5	+4.4	+8.1	+11.7	+14.9	+17.8	+26.0	
2.5	501	-14.0		-9.5	-8.0	-5.8	-4.2	-1.2	+1.5	+4.8	+8.7	+11.6	+17.0	+20.6	+25.0	
3.0	483	-13.0		-10.4	-7.5	-5.9	-4.4	-0.9	+2.0	+5.3	+8.9	+11.9	+18.1	+21.4	+29.0	
4.0	445	-14.0		-12.0	-8.3	-6.1	-4.0	-1.0	+2.0	+5.4	+9.0	+11.9	+16.9	+23.1	+31.0	
5.0	432	-17.0		-10.5	-8.9	-7.1	-5.0	-1.5	+1.5	+4.9	+9.1	+12.7	+20.4	+25.5	+34.0	
6.0	417	-17.0		-11.3	-10.1	-8.3	-6.2	-1.5	+1.3	+5.4	+9.8	+15.7	+23.1	+28.5	+36.0	
7.0	399	-24.0		-13.7	-11.6	-9.1	-6.6	-2.5	+1.6	+5.9	+11.4	+17.3	+26.7	+32.8	+39.0	
8.0	382	-29.0		-15.0	-13.9	-10.7	-7.8	-3.0	+1.7	+7.6	+13.6	+19.5	+26.9	+40.0	+46.0	
9.0	364	-42.0		-23.1	-19.2	-13.5	-9.9	-3.4	+1.7	+8.6	+17.8	+24.2	+35.2	+43.1	+58.0	
10.0	349	-45.0		-20.2	-16.1	-11.5	-8.0	-4.0	+1.4	+9.6	+20.5	+29.4	+38.7	+52.3	+63.0	
11.0	340	-27.0		-23.5	-20.7	-16.7	-12.4	-4.8	+1.3	+10.1	+24.0	+31.5	+42.5	+64.5	+70.0	
12.0	334	-33.0		-18.5	-15.6	-11.7	-8.6	-2.8	+2.0	+9.4	+21.0	+31.6	+38.6	+53.6	+67.0	
13.0	320	-21.0		-18.6	-8.3	-7.0	-5.0	-1.1	+2.9	+9.2	+19.6	+32.3	+37.1	+49.6	+75.0	
14.0	310	-18.0		-16.7	-7.7	-5.0	-3.3	-0.7	+7.2	+14.5	+22.0	+31.7	+38.8	+48.0		
15.0	306	-10.0		-15.9	-6.4	-4.4	-2.8	-0.4	+2.6	+6.3	+11.1	+15.5	+28.4	+35.9	+43.0	
16.0	306	-5.0		-8.4	-5.9	-3.5	-2.1	-0.2	+2.7	+5.6	+9.5	+12.3	+21.5	+26.9	+34.0	
17.0	299	-7.0		-6.3	-5.0	-4.7	-2.7	-2.4	-0.6	+1.1	+3.9	+6.6	+10.7	+16.1	+27.0	
18.0	291	-7.0		-5.1	-3.5	-3.5	-2.4	-0.6	+0.6	+3.3	+4.9	+7.2	+12.6	+17.0	+22.0	
19.0	279	-9.0		-6.2	-5.1	-3.5	-2.4	-0.7	+0.6	+2.5	+4.4	+6.0	+8.8	+12.2	+16.0	
20.0	276	-12.0		-6.2	-4.7	-3.7	-2.9	-1.0	+0.2	+2.1	+3.8	+5.4	+8.5	+10.2	+15.0	
21.0	270	-9.3		-6.4	-5.2	-4.0	-3.2	-1.4	-0.3	+1.3	+3.4	+5.2	+7.2	+9.4	+11.0	
22.0	264	-9.0		-6.5	-5.7	-4.6	-3.5	-1.8	-0.5	+0.9	+2.5	+3.7	+4.8	+6.3	+9.0	
23.0	240	-9.0		-6.8	-5.9	-5.1	-4.2	-2.6	-0.9	+0.1	+1.6	+2.7	+4.5	+6.8	+10.0	
24.0	213	-8.0		-7.4	-6.3	-5.2	-4.4	-3.0	-1.5	-0.1	+1.6	+3.2	+6.1	+7.9	+12.0	
25.0	183	-9.0		-7.9	-6.8	-5.6	-4.5	-3.0	-1.9	-0.2	+1.7	+3.6	+6.9	+8.0	+9.0	
26.0	157	-26.0		-12.4	-8.4	-7.6	-6.5	-4.5	-2.0	-0.3	+0.8	+3.1	+5.7	+6.4	+7.0	
27.0	127	-25.0		-9.7	-8.7	-7.9	-7.3	-5.2	-2.7	-0.6	+0.3	+3.2	+4.5	+6.7	+11.0	
28.0	99	-10.0		-9.7	-8.3	-7.4	-5.4	-2.9	-0.7	+0.6	+2.5	+5.7	+7.0	+8.0		
29.0	74	-10.0		-9.3	-8.4	-7.6	-6.0	-3.2	-0.8	+0.8	+2.1	+4.3	+5.2	+6.0		
30.0	51	-10.0		-9.2	-8.6	-6.7	-4.3	-1.8	+0.4	+2.4	+3.4	+3.7	+4.0	+4.0		

IRIG RANGE REFERENCE ATMOSPHERE, SEPTEMBER TABLE III.2.9

STATION				ELEVATION M.S.L. (meters)		LOCATION		PERIOD OF DATA				ZONAL WIND COMPONENTS			
LAUNCH SITE-FORT GREELY		392		63°59' N		145°43' W		JAN 1956 TO JAN 1961				FORT GREELY MISSILE RANGE LAUNCH SITE			
ALT. (km)	NO. MSL	NO. OBS.	MIN.	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0	MAX.
SFC	569	-8.0	-6.2	-5.6	-4.5	-2.9	-1.4	-0.5	+0.2	+2.6	+3.7	+4.6	+5.3	+6.0	+6.0
0.5	556	-14.0	-11.6	-9.9	-8.4	-6.6	-3.5	-0.5	+1.9	+6.4	+8.7	+11.0	+12.3	+18.0	+18.0
1.0	551	-15.0	-12.9	-11.2	-9.3	-6.4	-2.9	-0.3	+3.0	+8.6	+10.9	+13.2	+15.7	+26.0	+26.0
1.5	537	-17.0	-12.3	-10.4	-8.0	-5.6	-1.9	+0.5	+4.3	+9.0	+11.5	+14.2	+17.6	+28.0	+28.0
2.0	511	-17.0	-11.2	-9.0	-7.3	-5.2	-1.8	+1.4	+4.9	+9.5	+11.6	+14.1	+16.6	+19.0	+19.0
2.5	498	-17.0	-10.5	-9.2	-6.8	-4.5	-1.0	+1.7	+5.4	+9.9	+11.7	+13.9	+22.0	+26.0	+26.0
3.0	482	-19.0	-12.0	-8.5	-6.2	-3.9	-0.7	+2.4	+6.3	+10.3	+13.4	+15.6	+19.1	+28.0	+28.0
4.0	464	-18.0	-10.3	-8.0	-6.2	-3.5	-0.5	+3.4	+7.8	+13.2	+15.9	+18.7	+23.3	+35.0	+35.0
5.0	448	-17.0	-10.5	-8.4	-6.3	-3.7	-0.2	+4.5	+10.0	+15.2	+19.2	+23.1	+28.5	+39.0	+39.0
6.0	426	-14.0	-10.9	-9.3	-6.1	-4.2	-0.2	+5.2	+12.2	+18.3	+23.4	+30.1	+33.7	+48.0	+48.0
7.0	402	-18.0	-14.9	-10.9	-7.9	-5.5	-0.6	+5.6	+14.2	+22.7	+29.6	+39.4	+44.9	+59.0	+59.0
8.0	379	-21.0	-14.2	-11.8	-9.2	-6.7	-0.9	+5.9	+16.1	+27.2	+35.0	+42.6	+47.6	+66.0	+66.0
9.0	346	-24.0	-17.5	-14.0	-10.3	-7.7	-1.5	+5.1	+17.0	+29.5	+40.2	+52.0	+55.5	+68.0	+68.0
10.0	330	-24.0	-16.3	-13.4	-10.3	-6.1	-0.2	+6.7	+16.4	+30.0	+40.1	+49.4	+56.8	+66.0	+66.0
11.0	316	-20.0	-13.8	-7.9	-5.7	-2.4	+1.4	+7.1	+16.0	+28.7	+36.2	+47.7	+52.8	+63.0	+63.0
12.0	309	-24.0	-13.9	-4.9	-2.6	-0.7	+2.3	+6.8	+12.9	+24.5	+31.8	+37.4	+48.9	+62.0	+62.0
13.0	301	-11.0	-6.4	-3.1	-0.9	+0.0	+3.1	+7.2	+11.7	+20.4	+25.7	+32.1	+35.9	+44.0	+44.0
14.0	293	-7.0	-6.5	-3.4	-0.6	+0.5	+3.4	+6.8	+10.9	+18.1	+21.4	+24.1	+29.0	+41.0	+41.0
15.0	287	-5.0	-3.5	-1.2	+0.0	+1.2	+3.8	+6.6	+10.1	+16.0	+19.4	+21.2	+23.5	+28.0	+28.0
16.0	273	-4.0	-2.5	-0.9	-0.2	+1.4	+3.9	+6.7	+10.2	+14.3	+17.5	+19.9	+23.4	+28.0	+28.0
17.0	274	-5.0	-2.1	-0.7	-0.1	+1.5	+3.8	+6.6	+9.5	+13.3	+16.6	+19.5	+25.4	+22.0	+22.0
18.0	272	-4.0	-0.8	-0.5	+0.2	+1.5	+3.6	+6.2	+9.2	+12.4	+14.9	+15.9	+18.1	+23.2	+23.2
19.0	264	-2.0	-0.8	-0.3	+0.5	+1.7	+3.8	+6.4	+9.4	+12.2	+13.9	+16.9	+18.6	+21.0	+21.0
20.0	257	-4.0	-2.2	-0.8	-0.1	+1.2	+3.9	+6.3	+8.9	+11.7	+14.2	+16.3	+17.7	+21.0	+21.0
21.0	249	-2.0	-1.2	-0.4	+0.5	+1.6	+3.5	+6.1	+9.1	+11.6	+13.7	+15.4	+16.5	+21.0	+21.0
22.0	237	-4.0	-2.5	-0.5	+0.6	+1.5	+3.4	+6.1	+9.4	+11.9	+13.7	+15.1	+16.6	+22.0	+22.0
23.0	221	-1.0	-0.8	+0.1	+1.7	+3.5	+6.0	+9.6	+13.1	+14.4	+16.4	+17.7	+22.0	+22.0	+22.0
24.0	190	-5.0	-2.0	-0.5	+0.6	+2.3	+4.4	+7.1	+10.2	+13.0	+14.7	+18.3	+19.5	+26.0	+26.0
25.0	160	-2.0	-0.7	-0.1	+0.5	+1.7	+4.1	+7.1	+10.2	+13.6	+16.7	+19.3	+21.2	+22.0	+22.0
26.0	134	-1.0	-0.8	+0.0	+0.7	+1.8	+4.5	+7.6	+11.0	+14.6	+17.4	+19.9	+21.6	+24.0	+24.0
27.0	95	-1.0	+0.0	+1.2	+2.3	+4.1	+7.5	+12.0	+16.4	+18.4	+19.8	+21.8	+22.0	+22.0	+22.0
28.0	73	-4.0	-1.3	+1.3	+2.7	+5.2	+8.6	+13.4	+17.7	+21.6	+23.1	+23.6	+24.0	+24.0	+24.0
29.0	52	+1.0	+1.0	+1.7	+3.4	+6.5	+10.3	+15.5	+19.9	+24.4	+25.8	+26.4	+27.3	+27.3	+27.3
30.0	+1.0	+3.0	+3.6	+6.6	+11.2	+17.4	+22.8	+24.4	+26.0	+26.5	+26.5	+27.0	+27.0	+27.0	+27.0

IRIG RANGE REFERENCE ATMOSPHERE, OCTOBER TABLE II.2.10

STATION				ELEVATION W <sub>SL</sub> (meters)				LOCATION				PERIOD OF DATA				WIND COMPONENTS			
FAIRBANKS, ALASKA		LAUNCH SITE-FORT GREENLY		134		64° 49' N		147° 52' W		392		63° 59' N		145° 43' W		JAN 1956 TO JAN 1961			
ALT. (km)	NO. OBS.	MIN.	MAX.	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0	UNITS: WIND SPEED - m/sec	MAX.			
SFC	523	-7.0	-5.5	-4.5	-3.2	-2.4	-1.3	-0.5	-0.0	+1.4	+2.6	+4.4	+5.6	+11.0					
0.5	-500	-19.0	-10.6	-9.1	-7.8	-6.5	-4.4	-1.9	-0.0	+3.4	+6.3	+8.4	+10.0	+19.0					
1.0	485	-18.0	-14.2	-12.7	-10.5	-8.7	-5.6	-1.6	+1.8	+6.3	+8.6	+11.4	+15.0	+19.0					
1.5	472	-19.0	-16.1	-13.0	-10.3	-7.8	-4.2	-0.2	+3.8	+7.9	+10.7	+13.3	+16.2	+21.0					
2.0	455	-23.0	-14.4	-12.2	-9.4	-7.1	-3.1	+0.3	+4.5	+8.5	+12.4	+14.9	+16.6	+23.0					
2.5	438	-18.0	-14.6	-10.9	-8.1	-6.0	-2.0	+1.4	+5.2	+9.1	+12.1	+16.4	+19.2	+22.0					
3.0	430	-17.0	-13.3	-9.5	-7.0	-4.9	-1.1	+2.0	+5.7	+9.6	+13.5	+16.0	+18.9	+29.0					
4.0	411	-12.9	-10.3	-7.4	-4.5	-0.8	+2.6	+6.8	+11.8	+14.5	+16.8	+20.8	+28.0						
5.0	385	-21.6	-14.0	-11.7	-8.9	-5.6	-0.8	+3.0	+7.8	+12.5	+15.1	+19.1	+22.3	+37.0					
6.0	361	-24.0	-18.6	-14.7	-9.9	-5.9	-0.7	+3.8	+9.3	+14.7	+17.6	+21.8	+28.1	+34.0					
7.0	335	-26.0	-22.6	-19.1	-11.4	-6.5	-1.6	+4.1	+10.4	+16.8	+20.2	+26.3	+31.6	+48.0					
8.0	315	-35.0	-26.9	-18.8	-13.0	-7.8	-1.4	+4.6	+12.0	+18.8	+24.7	+28.9	+30.9	+43.0					
9.0	295	-31.0	-28.0	-18.6	-11.4	-6.5	-1.4	+6.1	+13.1	+19.6	+24.6	+35.2	+42.0	+48.0					
10.0	282	-27.0	-24.1	-18.5	-8.9	-4.8	-0.4	+6.5	+14.4	+20.4	+25.9	+33.5	+47.5	+51.0					
11.0	265	-24.0	-19.3	-14.4	-5.3	-1.5	+1.9	+7.3	+14.0	+20.3	+24.5	+30.4	+51.3	+58.0					
12.0	254	-19.0	-15.4	-12.2	-2.3	-0.1	+3.5	+7.6	+13.8	+20.9	+23.3	+31.2	+43.4	+52.0					
13.0	244	-11.0	-10.2	-7.2	-1.7	+1.0	+4.3	+7.9	+13.7	+19.9	+23.4	+27.4	+33.5	+42.0					
14.0	236	-8.0	-6.6	-4.6	-0.1	+1.7	+5.0	+8.7	+12.8	+18.8	+23.0	+25.5	+34.3	+42.0					
15.0	229	-7.0	-5.8	-2.7	-0.1	+2.0	+5.3	+9.6	+14.6	+19.6	+23.0	+24.7	+28.8	+42.0					
16.0	215	-6.0	-2.8	-1.0	+0.3	+2.8	+5.8	+9.6	+14.9	+18.2	+20.1	+24.0	+26.8	+32.0					
17.0	206	-7.0	-4.6	-2.3	+0.1	+2.0	+5.6	+9.8	+14.7	+18.0	+19.9	+25.3	+23.9	+31.0					
18.0	196	-4.2	-0.9	+0.3	+3.1	+6.2	+9.8	+14.5	+19.1	+21.0	+22.7	+27.0	+46.0						
19.0	188	-3.0	-0.9	+0.6	+2.3	+6.7	+10.3	+14.3	+18.2	+19.5	+22.7	+27.1	+32.0						
20.0	177	-3.0	-0.9	-0.6	-0.1	+1.3	+6.2	+10.2	+14.3	+18.0	+20.4	+21.9	+24.1	+25.0					
21.0	166	-4.0	-2.6	-1.2	-0.1	+2.1	+5.8	+9.7	+14.5	+18.3	+22.7	+27.2	+31.3	+38.0					
22.0	152	-5.0	-3.4	-2.2	-0.7	+0.5	+4.8	+9.9	+14.1	+16.7	+19.2	+21.7	+31.2	+32.0					
23.0	134	-4.0	-3.8	-2.9	-1.5	-0.6	+3.5	+10.5	+14.0	+17.2	+19.2	+19.8	+23.6	+42.0					
24.0	114	-4.0	-3.8	-2.7	-0.7	-0.4	+3.0	+10.6	+14.8	+18.7	+21.4	+23.7	+28.4	+29.0					
25.0	94	-2.0	-1.7	-1.0	-0.6	+1.1	+9.7	+14.5	+19.5	+22.7	+24.8	+27.0	+28.0						
26.0	71	-7.0	-3.7	-3.1	-0.8	+0.6	+10.1	+15.3	+19.2	+22.4	+28.3	+29.2	+30.0						
27.0	55	-9.0	-4.8	-2.5	+0.3	+9.6	+16.1	+19.5	+21.5	+21.7	+22.4	+23.0							
28.0	34	-8.0	-1.6	-0.9	+1.1	+13.0	+19.1	+20.5	+21.3	+24.2	+24.5	+25.0							
29.0	22	-2.0	-0.9	-0.3	+7.5	+17.0	+20.8	+23.7	+24.9	+25.4	+25.7	+26.0	+27.7	+28.0					
30.0	12	-3.2	-1.1	+7.0	+18.0	+24.0	+26.8	+27.3	+27.8	+27.7	+28.0	+28.0							

IRIG RANGE REFERENCE ATMOSPHERE, NOVEMBER TABLE II 2.11

STATION			LOCATION			PERIOD OF DATA			WIND COMPONENTS					
			LATITUDE	LONGITUDE		JAN 1956 TO JAN 1961			FORT GREENY MISSILE RANGE LAUNCH SITE					
LAUNCH SITE-FORT GREENY			392	63° 59' N	145° 43' W	UNITS: WIND SPEED - m/sec			UNITS: WIND FREQUENCY					
ALT. (km) MSL	NO. OBS.	MIN.	10	2.28	5.0	100	250	500	750	900	950			
											990			
SFC	551	-8.0	-3.9	-3.4	-2.7	-1.8	-0.9	-0.5	-0.1	+0.4	+1.3	+2.4	+3.2	+6.0
0.5	535	-17.0	-13.4	-10.8	-9.1	-7.6	-5.3	-2.8	-0.5	+1.3	+2.7	+5.7	+7.2	+13.0
1.0	526	-19.0	-15.2	-13.7	-12.4	-10.1	-6.6	-2.9	+0.1	+4.0	+7.5	+9.6	+12.2	+17.0
1.5	515	-21.0	-15.2	-12.9	-11.1	-8.9	-5.0	-0.9	+3.0	+6.9	+9.7	+12.8	+13.9	+18.0
2.0	496	-16.0	-14.5	-12.3	-10.0	-7.8	-3.8	-0.2	+3.8	+7.0	+9.6	+12.7	+15.0	+20.0
2.5	479	-19.0	-12.7	-10.8	-9.3	-6.7	-2.4	+0.8	+4.9	+9.0	+10.8	+13.0	+14.6	+19.2
3.0	469	-16.0	-14.3	-9.7	-7.9	-5.1	-1.5	+1.7	+5.9	+9.9	+12.1	+13.9	+16.5	+22.0
4.0	434	-26.0	-10.6	-7.6	-6.0	-3.7	-0.3	+3.1	+7.1	+11.4	+14.5	+16.7	+19.3	+24.0
5.0	402	-16.0	-9.9	-7.6	-5.1	-3.1	+0.2	+4.6	+10.0	+14.3	+18.3	+23.2	+26.9	+36.0
6.0	384	-18.0	-11.5	-8.7	-6.1	-3.1	+0.0	+5.5	+11.7	+17.7	+20.9	+25.5	+29.5	+42.0
7.0	364	-23.0	-17.1	-14.1	-8.9	-4.7	-0.0	+6.2	+13.3	+21.1	+28.2	+34.3	+39.3	+43.0
8.0	345	-28.0	-21.7	-17.0	-11.6	-6.7	+0.0	+6.8	+14.3	+23.6	+31.8	+41.3	+46.5	+64.0
9.0	318	-25.0	-23.8	-13.8	-11.0	-5.8	+0.3	+6.7	+13.9	+22.1	+32.0	+37.1	+43.4	+64.0
10.0	302	-32.0	-13.9	-10.0	-5.2	-2.9	+1.7	+7.6	+13.3	+20.3	+24.9	+34.1	+41.9	+60.0
11.0	288	-14.0	-10.1	-5.7	-2.8	-0.3	+3.0	+7.5	+13.0	+18.1	+21.5	+27.4	+37.1	+57.0
12.0	281	-13.0	-5.5	-3.1	-1.6	-0.0	+3.8	+8.3	+12.8	+17.6	+21.9	+24.8	+30.5	+40.0
13.0	275	-7.0	-4.2	-1.8	-0.8	+0.3	+4.6	+9.3	+13.4	+17.2	+19.7	+25.7	+32.2	+37.0
14.0	265	-9.0	-4.7	-1.9	-0.4	+1.3	+6.0	+9.2	+12.4	+16.2	+19.7	+22.6	+32.1	
15.0	260	-5.0	-3.1	-0.8	+0.0	+2.0	+6.1	+9.5	+13.6	+20.3	+24.9	+34.1	+41.9	
16.0	256	-3.0	-1.2	-0.5	+0.4	+3.0	+6.3	+9.6	+14.2	+19.0	+21.0	+25.5	+29.4	
17.0	249	-4.0	-0.9	-0.2	+0.5	+3.1	+6.6	+10.2	+15.4	+18.8	+21.5	+24.7	+30.5	
18.0	244	-5.0	-0.8	+0.1	+1.5	+3.6	+6.6	+11.1	+15.9	+19.8	+21.9	+25.3	+28.5	
19.0	228	-6.0	-0.9	-0.2	+1.2	+3.9	+6.7	+10.7	+16.0	+21.4	+23.9	+26.8	+34.3	
20.0	216	-6.0	-0.7	-0.2	+0.7	+3.2	+6.3	+10.9	+15.7	+21.3	+25.0	+28.0	+34.8	
21.0	207	-7.0	-4.9	-0.8	+0.7	+2.6	+5.7	+11.3	+17.2	+23.6	+27.5	+30.2	+33.9	
22.0	190	-8.0	-4.5	-1.8	-0.1	+2.5	+5.6	+11.0	+17.7	+24.5	+29.7	+32.8	+42.0	
23.0	175	-7.0	-6.2	-5.0	-1.1	+1.0	+5.5	+11.7	+17.1	+25.2	+28.0	+31.0	+37.6	
24.0	162	-8.0	-7.3	-5.7	-1.9	+0.3	+5.2	+10.6	+17.8	+23.5	+26.6	+34.3	+37.3	
25.0	143	-9.0	-6.8	-2.7	+0.7	+0.7	+5.2	+10.9	+17.3	+25.9	+28.9	+36.7	+43.5	
26.0	127	-12.0	-11.7	-10.1	-2.9	+0.1	+4.4	+11.6	+18.4	+26.1	+30.8	+41.1	+47.7	
27.0	98	-13.0	-5.7	-1.6	-0.6	+3.5	+11.7	+18.8	+27.2	+33.0	+33.9	+40.0	+41.0	
28.0	69	-11.0	-9.7	-1.8	-0.8	+2.7	+11.1	+20.5	+29.0	+32.5	+36.2	+36.6	+37.0	
29.0	52	-10.0	-8.3	-1.9	+2.0	+12.0	+21.5	+28.3	+34.1	+34.9	+35.4	+36.0	+37.5	
30.0	41	-12.0	-3.9	-0.4	+4.6	+12.8	+23.7	+29.8	+32.9	+37.0	+37.5	+38.0		

IRIG RANGE REFERENCE ATMOSPHERE, DECEMBER TABLE II.2.12

STATION			LOCATION			PERIOD OF DATA			WIND COMPONENTS		
			LATITUDE		LONGITUDE	JAN 1956 TO JAN 1961			FORT GREELY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREELY			392	63° 59' N	145° 43' W	UNITS: WIND SPEED - m/sec					
ALT. (km)	NO. OBS.	MIN.	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0
MSL meters)											
595	-7.0		-3.5	-2.8	-1.9	-1.4	-0.8	-0.5	-0.2	-0.0	+0.5
580	-19.0		-13.5	-11.7	-9.5	-7.8	-4.7	-2.5	-0.9	-0.1	+1.1
572	-25.0		-17.8	-16.7	-14.9	-12.0	-7.7	-3.9	-0.9	+0.7	+1.7
562	-28.0		-21.4	-18.7	-16.1	-12.4	-7.4	-2.8	+0.4	+2.2	+4.7
537	-27.0		-24.6	-18.1	-15.7	-12.5	-6.8	-1.0	+2.3	+4.9	+7.5
520	-29.0		-23.7	-20.0	-16.1	-12.6	-5.7	-0.4	+3.3	+6.8	+9.5
509	-31.0		-22.9	-18.4	-14.7	-11.1	-4.6	-0.0	+4.5	+8.7	+11.5
460	-29.0		-23.1	-15.5	-12.5	-8.5	-3.2	+0.9	+5.8	+10.5	+11.5
423	-37.0		-27.7	-21.3	-13.4	-8.6	-2.4	+1.6	+8.1	+13.6	+14.9
405	-31.0		-26.9	-20.7	-13.1	-9.1	-2.8	+2.9	+10.1	+15.6	+21.8
392	-34.0		-30.0	-19.0	-13.8	-8.8	-2.4	+3.9	+12.1	+19.9	+25.4
378	-49.0		-29.2	-19.1	-14.0	-7.4	-0.9	+4.7	+13.9	+24.0	+30.0
261	-43.0		-28.3	-20.7	-10.7	-4.6	+0.1	+5.3	+14.4	+23.1	+38.6
350	-35.0		-21.4	-18.0	-7.6	-3.1	+1.5	+6.8	+14.6	+21.3	+38.3
338	-24.0		-14.6	-10.6	-4.6	-0.6	+2.9	+8.5	+15.0	+21.5	+27.5
321	-23.0		-7.5	-4.9	-1.9	+0.4	+4.9	+9.8	+15.6	+22.3	+25.9
305	-10.0		-6.9	-5.0	-0.9	+0.9	+6.5	+10.9	+17.1	+23.0	+32.0
288	-8.0		-5.0	-1.8	-0.4	+3.1	+8.0	+11.9	+17.8	+24.0	+38.6
273	-7.0		-4.1	-0.9	+0.8	+4.4	+8.3	+13.3	+19.5	+22.7	+32.7
260	-4.0		-3.3	-0.6	+1.4	+4.1	+8.8	+14.3	+22.1	+28.5	+31.8
247	-3.0		-2.5	-0.4	+1.6	+3.9	+9.3	+16.1	+23.1	+29.4	+32.5
240	-2.0		-0.5	+0.4	+2.1	+3.7	+9.6	+17.2	+26.0	+32.6	+36.5
225	-2.0		-0.5	+0.5	+1.8	+3.7	+9.8	+18.2	+27.2	+33.3	+36.9
208	+0.0		+0.2	+0.9	+2.7	+3.6	+9.0	+19.3	+27.5	+35.7	+42.0
187	-4.0		-0.7	+0.1	+1.5	+4.1	+6.9	+18.9	+28.8	+40.1	+45.5
170	-2.0		-0.6	+0.2	+1.8	+3.1	+6.1	+18.0	+27.8	+39.0	+44.5
150	+0.0		+0.1	+0.6	+1.5	+3.1	+6.1	+18.3	+29.0	+39.6	+48.5
129	+0.0		+0.4	+0.4	+2.6	+6.2	+6.2	+17.5	+28.5	+42.0	+53.2
107	-3.0		-1.9	-0.7	+1.0	+2.2	+5.7	+17.2	+33.3	+49.3	+54.4
78	-4.0		-0.8	-0.4	+0.4	+4.8	+14.0	+28.8	+40.1	+49.1	+58.1
60	-2.0		-1.8	-1.0	+2.3	+5.3	+13.0	+31.0	+43.0	+50.5	+58.0
42	-3.0		-0.9	+1.1	+5.1	+12.0	+12.0	+30.5	+54.3	+56.9	+74.0
29.0	+2.0		+2.0	+5.1	+12.5	+23.0	+38.5	+60.7	+64.8	+65.4	+66.0
30.0	-9.	+11.0		+19.2	+25.5	+36.7	+74.0	+74.5	+74.7	+75.0	+75.0

IRIG RANGE REFERENCE ATMOSPHERE, ANNUAL TABLE II.2.13

STATION			ELEVATION MSL (meters)			LOCATION			PERIOD OF DATA			WIND ZONAL COMPONENTS		
FAIRBANKS, ALASKA			134			64° 49' N 147° 52' W			JAN 1956 TO JAN 1961			FORT GREELY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREELY			392			63° 59' N 145° 43' W			CUMULATIVE PERCENTAGE			WIND SPEED - m/sec		
ALT. (km)	NO. W <sub>SL</sub>	OBS.	MIN.	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0
SFC	7085	-13.0	-5.5	-4.3	-3.2	-2.1	-0.9	-0.5	-0.0	+1.8	+3.1	+4.5	+5.7	+19.0
0.5	6911	-19.0	-9.9	-8.3	-6.5	-3.9	-1.2	+0.8	+4.4	+6.6	+8.7	+10.7	+25.0	+25.0
1.0	6803	-25.0	-16.1	-13.6	-11.0	-8.5	-4.8	-0.9	+2.2	+6.4	+9.1	+11.9	+14.9	+36.0
1.5	6659	-65.0	-17.7	-14.3	-11.0	-8.0	-3.8	-0.3	+7.5	+10.3	+13.2	+16.3	+28.0	+28.0
2.0	6447	-31.0	-17.3	-14.1	-10.6	-7.4	-2.9	+3.0	+4.0	+8.2	+11.1	+14.0	+16.9	+27.0
2.5	6249	-31.0	-17.5	-14.2	-10.1	-6.7	-2.3	+0.6	+4.6	+8.8	+11.6	+14.8	+17.9	+30.0
3.0	6108	-31.0	-16.4	-13.1	-9.1	-6.0	-2.0	+1.1	+5.2	+9.7	+12.8	+15.9	+18.9	+38.0
4.0	5716	-29.0	-14.3	-11.2	-8.1	-5.5	-1.4	+1.7	+6.2	+11.4	+14.9	+18.5	+22.2	+35.0
5.0	5390	-37.0	-14.6	-11.7	-8.7	-5.7	-1.3	+2.4	+7.8	+13.6	+18.0	+22.5	+26.6	+41.0
6.0	5137	-34.0	-16.5	-12.9	-9.4	-6.3	-1.5	+2.9	+9.4	+16.2	+21.3	+26.2	+32.2	+48.0
7.0	4861	-35.0	-18.5	-15.1	-11.3	-7.3	-1.9	+3.4	+10.6	+19.0	+24.9	+31.3	+37.7	+61.0
8.0	4594	-4.9.0	-21.7	-17.2	-12.4	-7.9	-2.0	+4.0	+11.9	+21.2	+27.8	+35.2	+42.7	+70.0
9.0	4326	-46.0	-23.3	-17.6	-12.5	-7.9	-1.6	+4.2	+12.4	+22.2	+29.3	+36.9	+46.2	+86.0
10.0	4143	-45.0	-21.2	-16.5	-11.0	-6.4	-0.8	+4.5	+12.5	+21.9	+28.9	+38.0	+48.5	+90.0
11.0	3967	-30.0	-16.2	-12.3	-8.2	-4.2	-0.2	+4.9	+11.9	+20.2	+27.4	+35.5	+47.1	+67.0
12.0	3C37	-33.0	-13.0	-8.5	-5.6	-2.9	+0.1	+4.9	+11.4	+19.2	+24.8	+32.8	+39.8	+75.0
13.0	3710	-32.0	-9.3	-6.8	-4.4	-2.3	+0.2	+5.0	+11.0	+18.3	+23.5	+30.6	+36.2	+51.0
14.0	3588	-18.0	-7.6	-5.2	-3.9	-1.8	+0.3	+4.8	+10.5	+17.8	+23.3	+28.6	+34.8	+53.0
15.0	3493	-16.0	-7.2	-5.4	-3.6	-1.8	+0.2	+4.5	+10.5	+18.2	+23.2	+28.6	+34.2	+52.0
16.0	3405	-14.0	-6.2	-4.9	-3.5	-1.8	+0.0	+4.4	+10.6	+18.4	+24.3	+29.9	+36.5	+52.0
17.0	3311	-17.0	-6.4	-5.0	-3.4	-2.0	+0.2	+3.8	+10.5	+18.6	+24.8	+31.5	+35.9	+62.0
18.0	3223	-11.0	-6.5	-5.4	-3.8	-2.4	+0.4	+3.4	+10.5	+19.4	+26.1	+33.4	+39.7	+65.0
19.0	3081	-13.0	-6.8	-5.7	-4.4	-2.9	-0.7	+2.8	+10.2	+19.6	+26.7	+34.5	+41.0	+64.0
20.0	2941	-16.0	-7.7	-6.5	-5.2	-3.6	-1.2	+2.2	+2.9	+19.9	+27.5	+36.4	+43.1	+76.0
21.0	2798	-20.0	-8.2	-7.2	-5.9	-4.4	-1.8	+1.8	+9.5	+20.0	+28.3	+38.2	+45.2	+85.0
22.0	2627	-13.0	-8.7	-7.6	-6.5	-5.2	-2.6	+1.3	+9.4	+20.0	+29.3	+39.4	+47.2	+76.0
23.0	2416	-28.0	-10.2	-9.2	-7.8	-6.2	-3.4	+0.8	+9.7	+20.0	+29.2	+39.4	+49.8	+74.0
24.0	2115	-20.0	-10.4	-12.4	-8.8	-7.0	-6.0	+0.0	+9.3	+20.1	+28.9	+40.8	+52.4	+74.0
25.0	1811	-28.0	-14.1	-12.0	-9.8	-7.9	-4.9	-0.1	+8.9	+20.4	+30.2	+43.5	+53.6	+84.0
26.0	1507	-26.0	-16.6	-13.9	-11.4	-8.9	-6.0	-0.6	+8.4	+18.7	+30.1	+41.8	+53.9	+74.0
27.0	1176	-30.0	-17.8	-15.6	-11.9	-9.8	-6.7	-1.6	+7.4	+18.6	+28.2	+38.5	+50.2	+73.0
28.0	893	-36.2	-20.1	-16.9	-13.3	-10.7	-7.7	-2.7	+7.1	+19.8	+29.0	+38.8	+58.0	+93.0
29.0	635	-38.0	-21.2	-17.7	-14.5	-11.6	-8.6	-4.2	+7.2	+21.0	+30.1	+40.5	+55.6	+78.0
30.0	465	-29.0	-24.3	-19.4	-15.7	-12.8	-9.6	-5.0	+5.9	+22.1	+27.9	+37.1	+57.3	+89.0

IRIG RANGE REFERENCE ATMOSPHERE, JANUARY

TABLE II.3.1

STATION			ELEVATION MSL (meters)			LOCATION			PERIOD OF DATA			MERIDIONAL WIND COMPONENTS		
FAIRBANKS, ALASKA			134			64° 49' N 147° 52' W			JAN 1956 TO JAN 1961			FORT GREENE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREENLY			392			63° 59' N 145° 43' W			UNITS: WIND SPEED - m/sec					
ALT. (km) MSL	NO. OBS.	MIN.	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0	MAX
SFC	692	-6.0	-4.9	-4.2	-3.6	-2.9	-1.6	-0.7	-0.2	-0.0	+0.6	+1.4	+2.1	+5.0
0.5	667	-11.0	-7.1	-5.4	-4.2	-3.2	-1.7	-0.5	+0.5	+2.1	+3.3	+4.6	+5.6	+8.0
1.0	648	-10.0	-7.8	-6.4	-4.3	-2.8	-0.9	+0.3	+3.0	+5.4	+7.3	+9.5	+10.9	+17.0
1.5	636	-11.0	-9.1	-7.3	-5.5	-4.3	-1.5	+0.6	+4.1	+4.5	+7.4	+11.3	+14.8	+19.0
2.0	603	-15.0	-12.4	-9.5	-7.1	-2.4	-2.0	+0.4	+4.1	+8.1	+11.3	+14.4	+17.3	+21.0
2.5	583	-22.0	-13.5	-11.2	-9.3	-7.2	-2.8	+0.4	+4.4	+9.1	+11.8	+14.3	+17.0	+21.0
3.0	576	-26.0	-16.0	-13.8	-11.2	-8.9	-3.5	+0.2	+5.1	+9.5	+12.4	+15.9	+18.1	+29.0
4.0	519	-23.0	-17.9	-16.5	-14.8	-11.4	-4.7	-0.7	+5.6	+10.6	+13.3	+15.7	+21.9	+29.0
5.0	476	-39.0	-25.7	-23.5	-20.0	-16.4	-6.9	-0.7	+6.6	+13.7	+15.9	+20.0	+22.7	+36.0
6.0	443	-37.0	-32.5	-27.6	-23.9	-18.4	-7.9	+0.8	+8.7	+15.7	+19.6	+25.4	+35.5	+44.0
7.0	429	-59.0	-39.8	-34.2	-27.1	-22.1	-9.0	+0.5	+10.3	+19.5	+23.7	+29.0	+33.7	+57.0
8.0	393	-60.0	-39.5	-37.0	-29.3	-23.2	-9.4	-0.1	+10.3	+18.9	+23.8	+29.5	+44.0	+63.0
9.0	370	-56.0	-43.2	-39.5	-30.8	-23.2	-10.2	+0.2	+8.6	+18.2	+26.2	+32.2	+43.3	+67.0
10.0	356	-42.0	-40.8	-33.9	-28.3	-21.7	-9.7	+0.5	+6.7	+18.2	+26.0	+30.4	+40.4	+69.0
11.0	334	-38.0	-36.6	-32.3	-24.4	-17.9	-7.7	+0.3	+7.3	+15.4	+24.1	+31.3	+36.6	+58.0
12.0	325	-37.0	-32.7	-28.2	-21.5	-15.6	-6.7	-0.1	+6.3	+12.7	+18.9	+26.5	+32.7	+42.0
13.0	309	-32.0	-25.9	-21.9	-18.8	-15.5	-6.8	-0.4	+5.5	+10.8	+14.8	+18.9	+24.4	+33.0
14.0	294	-27.0	-26.5	-22.1	-19.0	-14.7	-8.5	-0.8	+4.7	+9.9	+13.1	+17.6	+21.0	+31.0
15.0	287	-32.0	-26.1	-22.8	-20.5	-16.8	-8.2	-0.9	+4.8	+8.4	+11.8	+14.6	+16.1	+23.0
16.0	276	-39.0	-40.8	-33.9	-28.3	-24.4	-17.9	-10.4	-1.8	+3.6	+7.6	+12.1	+15.6	+24.0
17.0	269	-39.0	-35.3	-27.7	-25.9	-22.0	-10.9	-2.3	+3.7	+7.7	+10.5	+14.9	+19.3	+30.0
18.0	256	-40.0	-32.4	-31.0	-28.2	-24.3	-13.3	-3.2	+2.8	+7.4	+8.9	+13.1	+15.2	+21.0
19.0	235	-41.0	-36.6	-33.5	-30.7	-25.6	-14.5	-4.3	+2.2	+7.0	+9.4	+11.6	+14.6	+22.0
20.0	221	-52.0	-52.0	-44.7	-38.9	-34.4	-27.9	-16.3	-5.4	+1.3	+5.6	+7.4	+8.9	+26.0
21.0	205	-49.0	-45.3	-40.7	-31.7	-21.7	-17.7	-6.2	+1.3	+5.8	+7.9	+12.6	+15.9	+22.0
22.0	189	-64.0	-59.1	-42.7	-36.2	-21.3	-7.8	-1.5	+1.5	+5.6	+7.5	+13.3	+16.1	+19.0
23.0	175	-63.0	-60.2	-51.0	-44.1	-39.8	-24.0	-10.2	-0.0	+4.3	+6.7	+8.0	+19.6	+22.0
24.0	144	-64.0	-63.8	-61.3	-55.0	-47.5	-34.1	-15.0	-0.6	+2.8	+6.2	+8.7	+9.7	+15.0
25.0	118	-64.0	-63.8	-62.1	-55.8	-49.6	-32.4	-19.2	-0.9	+1.5	+4.9	+8.1	+10.1	+11.0
26.0	83	-68.0	-55.7	-51.7	-53.5	-49.7	-34.1	-11.4	-0.8	+1.8	+7.2	+8.1	+10.4	+11.0
27.0	55	-71.0	-55.0	-53.5	-50.2	-37.9	-23.4	-3.7	+2.3	+8.0	+8.5	+8.8	+9.0	+9.0
28.0	37	-57.0	-55.5	-52.0	-43.7	-24.4	-3.2	+5.1	+7.5	+8.3	+8.7	+9.0	+9.7	+17.0
29.0	29	-59.0	-53.8	-49.7	-42.4	-37.0	-1.4	+4.8	+6.9	+16.4	+16.7	+16.7	+17.0	+17.0

IRIG RANGE REFERENCE ATMOSPHERE, FEBRUARY TABLE II.3.2

STATION	ELEVATION MSL (meters)			LOCATION			PERIOD OF DATA			MERIDIONAL WIND COMPONENTS		
	ALT. (km)	NO. OBS.	MIN.	LATITUDE	LONGITUDE		JAN 1956 TO JAN 1961	UNITS: WIND SPEED - m/sec	FORT GREENY MISSILE RANGE LAUNCH SITE			
FAIRBANKS, ALASKA	134			64° 49' N	147° 52' W							
LAUNCH SITE-FORT GREENY	392			63° 59' N	145° 43' W							
ALT. (km)	NO. OBS.	MIN.		1.0	2.28	5.0	100	250	500	750	900	950
				1.0	2.28	5.0	100	250	500	750	900	990
SFC	586	-9.0	-5.7	-5.0	-3.9	-3.3	-1.9	-0.7	-0.2	+0.3	+1.3	+2.4
0.5	554	-7.0	-6.2	-5.4	-4.5	-3.3	-1.6	-0.5	-0.3	+2.5	+3.3	+4.2
1.0	538	-13.0	-6.3	-5.1	-5.7	-2.5	-0.8	+0.2	+2.5	+4.4	+5.5	+7.1
1.5	511	-13.0	-7.9	-6.9	-5.4	-3.8	-1.0	+0.2	+3.2	+6.3	+7.8	+9.6
2.0	494	-14.0	-10.7	-9.1	-7.4	-5.2	-2.0	+0.2	+3.6	+7.6	+10.4	+12.0
2.5	481	-24.0	-13.5	-11.6	-9.6	-6.9	-2.7	+0.1	+4.6	+8.2	+10.9	+12.7
3.0	471	-34.0	-16.6	-15.2	-12.4	-9.5	-3.3	+0.6	+4.6	+10.0	+12.7	+14.5
4.0	420	-23.0	-22.2	-18.6	-16.3	-11.8	-3.4	-3.1	+5.4	+9.0	+10.9	+13.8
5.0	392	-31.0	-26.0	-23.5	-20.0	-15.2	-4.8	+1.2	+7.1	+11.5	+14.1	+17.0
6.0	365	-38.0	-30.4	-26.8	-21.9	-17.2	-4.7	+1.4	+8.0	+13.9	+18.2	+20.9
7.0	326	-49.0	-33.7	-28.5	-23.1	-17.0	-4.2	+2.4	+9.1	+15.3	+21.7	+26.5
8.0	299	-58.0	-33.0	-27.3	-21.4	-15.2	-4.2	+2.2	+9.4	+16.0	+20.0	+24.3
9.0	279	-43.0	-33.6	-27.6	-23.5	-13.7	-3.0	+2.9	+9.6	+14.4	+18.0	+23.8
10.0	263	-47.0	-27.7	-25.0	-19.7	-10.3	-2.1	+2.6	+8.3	+12.9	+15.4	+17.8
11.0	255	-48.0	-29.4	-28.0	-18.2	-9.7	-2.2	+2.2	+7.7	+11.8	+14.0	+17.0
12.0	249	-34.0	-23.9	-23.2	-14.5	-7.8	-1.3	+2.2	+6.9	+10.0	+12.5	+15.7
13.0	242	-31.0	-27.2	-23.2	-14.6	-7.6	-1.8	+1.3	+6.1	+10.2	+11.9	+12.9
14.0	237	-35.0	-23.8	-23.8	-17.7	-6.5	-1.7	+1.5	+5.9	+10.0	+11.1	+12.3
15.0	226	-26.0	-23.5	-19.9	-15.3	-6.4	-2.2	+1.6	+6.1	+9.6	+11.1	+12.3
16.0	218	-27.0	-24.8	-21.5	-16.5	-8.0	-2.5	+1.1	+5.4	+8.9	+11.5	+14.2
17.0	208	-35.0	-25.9	-21.6	-16.2	-8.5	-2.3	+1.1	+5.0	+8.2	+11.8	+15.6
18.0	225	-34.0	-27.9	-21.1	-16.7	-7.7	-1.8	+0.6	+4.2	+7.2	+12.5	+17.3
19.0	190	-26.0	-25.0	-20.6	-15.5	-7.0	-2.4	+0.0	+4.1	+7.3	+10.5	+14.3
20.0	182	-24.0	-23.1	-20.9	-17.2	-8.8	-2.8	+0.2	+3.3	+6.8	+10.2	+12.6
21.0	170	-31.0	-24.2	-22.1	-14.7	-9.0	-3.6	-0.3	+3.4	+6.5	+10.5	+14.3
22.0	158	-23.0	-22.4	-20.8	-18.0	-9.5	-4.3	-0.7	+2.8	+6.0	+7.5	+13.6
23.0	148	-25.0	-22.6	-18.5	-10.5	-4.8	-1.1	+2.2	+6.5	+8.7	+12.6	+16.1
24.0	124	-33.0	-32.7	-26.5	-22.8	-12.8	-6.6	-1.1	+3.1	+6.8	+10.4	+17.3
25.0	102	-36.0	-30.9	-27.6	-23.9	-15.3	-0.2	-0.8	+3.0	+6.9	+8.4	+10.6
26.0	81	-39.2	-29.1	-23.9	-20.6	-8.9	-0.8	+1.5	+6.4	+8.9	+10.5	+20.1
27.0	66	-42.0	-32.4	-23.6	-19.7	-12.4	-1.6	+1.8	+4.8	+11.7	+18.2	+21.0
28.0	65	-47.0	-34.9	-26.7	-22.5	-13.7	-0.7	+2.1	+4.5	+6.7	+11.9	+18.6
29.0	28	-43.0	-33.5	-31.1	-22.0	-0.4	+2.2	+3.6	+5.3	+5.6	+5.8	+14.0
30.0	22	-48.0	-37.8	-31.7	-24.7	-0.6	+2.5	+5.2	+5.6	+5.8	+5.9	+6.0

IRIG RANGE REFERENCE ATMOSPHERE, MARCH

TABLE II.3.3

STATION	ELEVATION MSL (meters)			LOCATION		PERIOD OF DATA			MERIDIONAL WIND COMPONENTS		
	ALT (km)	NO. OBS.	MIN.	LATITUDE	LONGITUDE	JAN 1956 TO JAN 1961	UNITS: WIND SPEED - m/sec	FORT GREENY RANGE LAUNCH SITE	FORT GREENY MISSILE RANGE LAUNCH SITE	MAX	
FAIRBANKS, ALASKA	134			64° 49' N	147° 52' W						
LAUNCH SITE-FORT GREENY	392			63° 59' N	145° 43' W						
ALT (km) MSL	NO. OBS.	MIN.	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0
CUMULATIVE	PERCENTAGE	FREQUENCY									
SFC	61.1	-10.0	-6.9	-5.8	-4.6	-3.9	-2.2	-0.7	+0.7	+1.8	+2.6
0.5	59.9	-12.0	-7.0	-5.8	-4.2	-3.5	-1.9	-0.7	-0.0	+1.8	+4.2
1.0	59.3	-10.0	-7.0	-5.1	-4.2	-3.0	-1.2	-0.2	+1.8	+3.0	+5.2
1.5	58.1	-12.0	-7.9	-5.5	-4.2	-3.8	-1.3	+0.3	+4.6	+6.3	+7.0
2.0	56.9	-14.0	-10.4	-9.3	-7.6	-5.6	-2.0	+0.7	+3.9	+6.4	+9.5
2.5	55.3	-15.0	-12.8	-10.7	-9.0	-6.9	-2.1	+0.7	+4.7	+8.5	+13.1
3.0	54.2	-20.0	-14.3	-12.6	-10.2	-7.8	-2.3	+0.9	+5.1	+8.8	+14.0
4.0	52.1	-32.0	-20.4	-16.1	-12.8	-8.8	-2.5	+0.9	+5.1	+11.6	+15.7
5.0	49.4	-42.0	-22.5	-20.2	-17.7	-10.9	-3.2	+1.4	+6.0	+10.7	+17.1
6.0	46.9	-45.0	-32.1	-23.0	-21.6	-12.6	-3.4	+1.6	+7.8	+13.6	+20.0
7.0	44.2	-47.0	-37.5	-24.9	-19.2	-13.5	-3.4	+2.4	+9.6	+15.4	+23.0
8.0	41.4	-51.0	-36.9	-26.7	-20.7	-13.1	-3.7	+2.0	+9.2	+17.5	+21.9
9.0	38.7	-59.0	-41.1	-31.1	-19.8	-12.7	-3.5	+1.9	+7.8	+15.5	+22.0
10.0	36.5	-60.0	-34.3	-25.6	-18.7	-11.5	-3.9	+1.2	+6.3	+13.1	+19.3
11.0	35.3	-60.0	-35.4	-21.9	-16.6	-10.5	-3.6	+1.0	+6.7	+11.8	+23.0
12.0	33.4	-64.0	-20.0	-20.0	-15.1	-11.5	-3.6	+1.0	+5.6	+12.2	+19.0
13.0	32.6	-27.0	-24.7	-16.5	-13.2	-9.9	-4.2	+0.8	+5.5	+11.3	+16.7
14.0	31.1	-24.0	-18.4	-15.9	-12.0	-10.0	-3.7	+0.4	+5.2	+10.7	+13.7
15.0	29.7	-25.0	-24.0	-16.2	-12.6	-9.7	-4.2	+0.1	+4.7	+10.0	+13.7
16.0	23.2	-35.0	-24.0	-16.6	-12.6	-8.8	-4.1	+0.3	+4.6	+11.5	+18.6
17.0	21.5	-26.0	-25.1	-17.5	-11.9	-8.9	-3.9	+0.0	+5.3	+11.1	+16.7
18.0	20.0	-27.4	-28.0	-20.6	-16.6	-12.4	-9.0	-0.5	+4.5	+12.0	+19.1
19.0	26.0	-33.0	-24.5	-16.5	-13.2	-9.2	-4.0	-0.3	+4.2	+9.3	+14.5
20.0	24.6	-35.0	-30.2	-27.3	-21.0	-14.8	-4.4	-0.3	+3.9	+8.5	+12.0
21.0	23.2	-35.0	-33.5	-29.7	-17.4	-11.3	-5.0	-0.4	+3.8	+7.8	+11.4
22.0	21.5	-39.0	-36.8	-32.5	-13.0	-5.3	-0.7	+3.4	+8.1	+10.7	+14.0
23.0	20.1	-44.0	-38.9	-32.7	-21.9	-14.2	-5.6	-0.5	+3.8	+6.9	+9.9
24.0	17.2	-41.0	-40.2	-37.0	-22.3	-15.9	-7.0	-0.6	+3.4	+6.7	+12.7
25.0	1.4	-45.0	-41.2	-41.7	-22.7	-19.0	-9.2	-1.1	+3.4	+6.7	+12.3
26.0	12.8	-51.0	-48.7	-44.0	-26.5	-21.5	-9.5	-2.3	+2.6	+7.3	+13.0
27.0	9.5	-47.0	-34.8	-24.1	-20.5	-9.7	-1.8	+3.4	+6.9	+8.4	+14.7
28.0	7.5	-54.0	-44.2	-29.6	-24.2	-15.2	-2.1	-0.5	+2.2	+7.2	+10.1
29.0	3.5	-44.0	-33.2	-28.5	-23.0	-5.2	-0.2	+1.5	+16.2	+25.2	+26.0
30.0	1.4	-41.0	-36.5	-36.5	-27.4	-22.4	-3.4	-3.4	+2.6	+11.3	+11.8

# IRIG RANGE REFERENCE ATMOSPHERE, APRIL

TABLE II.3.4

STATION	ELEVATION MSL (meters)			LOCATION		PERIOD OF DATA	MERRIDIONAL WIND COMPONENTS		
	ALT. (km)	NO. OBS.	MIN.	LATITUDE	LONGITUDE		JAN 1956 TO JAN 1961	FORT GREENY RANGE LAUNCH SITE	MISSILE LAUNCH SITE
FAIRBANKS, ALASKA	134			64° 49' N	147° 52' W	UNITS: WIND SPEED - m/sec			
LAUNCH SITE-FORT GREENY	392			63° 59' N	145° 43' W	CUMULATIVE PERCENTAGE FREQUENCY			
	591	-8.0	-6.5	-5.8	-4.4	-0.6	+0.0	+2.0	+4.5
	577	-8.0	-6.7	-5.6	-3.6	-0.6	+0.5	+2.0	+6.0
0.5	572	-10.0	-6.2	-5.2	-2.7	-1.9	-0.6	+1.8	+7.6
1.0	569	-23.0	-6.5	-4.5	-2.3	-1.1	-0.1	+1.8	+5.3
1.5	563	-8.0	-6.7	-4.7	-3.5	-0.7	+0.7	+2.8	+7.2
2.0	563	-13.0	-7.7	-5.4	-2.2	-0.4	+1.5	+5.6	+8.8
2.5	549	-17.0	-8.6	-4.0	-2.5	-0.5	+1.9	+8.8	+9.2
3.0	538	-22.0	-14.8	-6.9	-4.4	-2.9	+2.0	+5.0	+11.4
4.0	515	-25.0	-8.6	-6.4	-4.3	-0.8	+2.3	+6.2	+17.0
5.0	497	-21.0	-12.3	-8.7	-5.8	-1.5	+2.7	+7.3	+14.1
6.0	480	-33.0	-23.1	-16.8	-10.7	-7.9	+2.3	+8.5	+20.0
7.0	453	-41.0	-28.4	-24.2	-14.3	-9.7	-2.9	+8.9	+24.0
8.0	426	-48.0	-36.7	-27.1	-17.3	-10.1	-4.2	+2.7	+24.0
9.0	400	-50.0	-29.9	-19.9	-16.0	-10.6	-4.4	+2.7	+24.0
10.0	383	-47.0	-30.0	-19.4	-16.2	-9.5	-3.7	+2.1	+24.0
11.0	364	-43.0	-19.3	-15.9	-11.7	-8.3	-2.9	+15.2	+24.0
12.0	354	-25.0	-20.2	-13.6	-10.4	-7.5	-2.4	+16.0	+24.0
13.0	345	-22.0	-15.7	-13.5	-8.9	-6.7	-2.7	+16.0	+24.0
14.0	335	-19.0	-14.8	-11.3	-8.6	-6.4	-1.9	+1.4	+24.0
15.0	328	-19.0	-12.8	-9.7	-7.6	-5.6	-0.6	+1.4	+24.0
16.0	323	-17.0	-12.3	-8.8	-7.6	-5.6	-0.6	+1.4	+24.0
17.0	319	-17.0	-11.9	-8.9	-6.4	-4.7	-0.7	+1.4	+24.0
18.0	316	-17.0	-12.8	-8.7	-5.7	-4.6	-0.8	+1.4	+24.0
19.0	307	-18.0	-11.9	-8.0	-6.6	-5.1	-0.6	+1.4	+24.0
20.0	293	-20.0	-16.0	-12.8	-9.7	-5.2	-0.7	+1.4	+24.0
21.0	280	-16.0	-13.1	-8.4	-6.6	-5.5	-0.7	+1.4	+24.0
22.0	262	-18.0	-12.3	-7.6	-5.2	-3.3	-0.7	+1.4	+24.0
23.0	237	-20.0	-13.3	-9.9	-8.0	-5.8	-0.7	+1.4	+24.0
24.0	196	-24.0	-13.0	-10.5	-8.5	-6.5	-0.8	+1.0	+24.0
25.0	159	-15.0	-13.4	-11.7	-9.7	-7.6	-0.4	+1.0	+24.0
26.0	126	-14.0	-11.6	-8.6	-7.6	-5.2	-0.7	+1.4	+24.0
27.0	100	-16.0	-15.9	-15.3	-14.0	-11.5	-0.8	+1.3	+24.0
28.0	75	-17.0	-16.7	-16.0	-10.8	-5.7	-0.7	+1.3	+24.0
29.0	48	-17.0	-16.9	-13.5	-11.5	-5.7	-1.5	+1.0	+24.0
30.0	31	-21.0	-17.4	-11.8	-11.8	-4.2	-1.2	+1.0	+24.0

# IRIG RANGE REFERENCE ATMOSPHERE, MAY

TABLE II.3.5

STATION			ELEVATION M.S.L. (meters)		LOCATION		PERIOD OF DATA		MERIDIONAL WIND COMPONENTS		FORT GREENY MISSILE RANGE LAUNCH SITE			
FAIRBANKS, ALASKA			134		64° 49' N 147° 52' W		JAN 1956 TO JAN 1961		WIND SPEED - m/sec		UNITS: WIND SPEED - m/sec			
ALT. (km) M.S.L.	NO. OBS.	MIN	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0	MAX
SFC	608	-8.0	-6.6	-6.0	-5.3	-4.5	-2.9	-0.7	+0.3	+2.1	+2.8	+3.7	+6.9	+7.0
0.5	602	-10.0	-7.9	-6.9	-5.9	-4.5	-2.3	-0.4	+1.0	+2.8	+4.1	+5.7	+7.3	+12.0
1.0	597	-10.0	-5.8	-4.9	-4.1	-3.1	-1.2	-0.0	+1.5	+3.9	+5.8	+6.9	+7.7	+14.0
1.5	592	-15.0	-5.9	-5.2	-3.9	-2.7	-0.9	+0.1	+2.7	+5.5	+7.1	+8.7	+10.2	+15.0
2.0	581	-9.0	-6.4	-4.9	-3.8	-2.6	-0.8	+0.5	+3.6	+6.9	+8.4	+9.9	+12.2	+18.0
2.5	560	-14.0	-6.5	-5.6	-4.6	-3.4	-0.8	+1.4	+4.4	+8.5	+10.6	+12.2	+15.2	+18.0
3.0	550	-12.0	-8.6	-7.4	-6.2	-4.0	-0.9	+1.9	+5.0	+8.6	+11.4	+15.0	+16.5	+24.0
4.0	523	-19.0	-14.7	-11.8	-8.9	-6.3	-1.4	-2.3	+6.1	+10.0	+12.3	+15.6	+18.7	+26.0
5.0	494	-26.0	-21.0	-15.3	-10.4	-7.5	-1.7	+2.3	+7.2	+11.6	+14.4	+18.8	+23.3	+31.0
6.0	476	-42.0	-22.6	-18.8	-15.0	-10.0	-2.3	+2.5	+8.3	+13.1	+17.2	+21.7	+23.6	+29.0
7.0	449	-35.0	-29.5	-21.1	-16.7	-10.6	-3.0	+2.9	+9.3	+15.6	+21.2	+25.1	+28.5	+38.0
8.0	433	-55.0	-29.6	-23.5	-19.0	-13.6	-6.1	+2.9	+10.4	+18.0	+24.6	+31.1	+35.2	+40.0
9.0	408	-55.0	-32.9	-24.6	-19.6	-14.3	-4.4	+3.0	+11.0	+19.0	+27.1	+32.6	+38.9	+42.0
10.0	394	-35.0	-28.0	-22.0	-18.0	-12.7	-4.1	+2.9	+9.5	+17.9	+24.1	+32.5	+36.5	+47.0
11.0	371	-35.0	-23.2	-18.5	-14.4	-10.4	-3.4	+2.1	+8.0	+13.6	+20.0	+23.5	+33.2	+40.0
12.0	351	-28.0	-15.7	-13.7	-11.7	-7.9	-2.0	+1.5	+6.0	+10.7	+13.4	+16.4	+23.4	+34.0
13.0	342	-23.0	-14.8	-12.6	-9.2	-6.1	+1.3	+1.3	+5.4	+8.9	+10.8	+12.8	+14.7	+19.0
14.0	329	-18.0	-13.0	-13.9	-9.2	-5.9	-0.2	+1.5	+4.5	+7.3	+8.2	+11.8	+14.7	+23.0
15.0	322	-15.0	-13.7	-11.6	-7.7	-4.6	-1.5	+1.2	+4.0	+6.4	+7.8	+9.8	+11.8	+22.0
16.0	314	-15.0	-12.9	-10.8	-6.2	-3.8	-0.9	+0.8	+3.5	+6.0	+7.8	+9.7	+12.9	+26.0
17.0	307	-15.0	-11.6	-9.5	-6.5	-3.5	-0.9	+0.7	+2.8	+5.4	+6.7	+8.7	+10.4	+14.0
18.0	295	-12.0	-10.0	-8.0	-6.0	-3.9	-1.1	+0.2	+2.5	+4.8	+6.7	+8.7	+11.0	+16.0
19.0	284	-11.0	-9.0	-6.2	-5.0	-3.7	-0.9	+0.9	+2.3	+4.0	+4.9	+7.2	+9.1	+15.0
20.0	264	-11.0	-8.3	-6.2	-5.0	-3.4	-1.3	-0.0	+1.6	+3.6	+5.2	+7.4	+10.1	+15.0
21.0	254	-11.0	-9.4	-6.6	-4.7	-3.4	-1.0	+0.0	+1.8	+3.8	+5.3	+6.7	+8.8	+11.0
22.0	240	-9.0	-8.5	-7.1	-5.0	-3.5	-1.4	-0.0	+1.3	+3.3	+5.2	+6.5	+8.3	+10.0
23.0	223	-10.0	-7.6	-6.9	-5.4	-3.9	-1.3	-0.0	+1.3	+3.1	+4.7	+6.4	+8.3	+10.0
24.0	197	-11.0	-8.1	-5.7	-4.3	-2.0	-0.4	+1.1	+1.1	+3.0	+5.0	+5.5	+9.0	+11.0
25.0	174	-12.0	-11.2	-9.3	-6.7	-4.7	-1.9	-0.4	+1.1	+2.8	+3.9	+6.0	+6.7	+11.0
26.0	150	-11.0	-9.7	-7.3	-5.0	-2.1	-0.5	+0.9	+2.7	+4.7	+6.2	+7.5	+11.0	
27.0	109	-14.0	-11.9	-10.5	-7.3	-4.7	-2.0	-0.5	+0.7	+3.0	+4.7	+6.5	+9.9	+11.0
28.0	86	-12.0	-9.0	-7.6	-4.3	-2.1	-0.8	+1.2	+3.5	+6.3	+8.5	+9.1	+10.0	
29.0	59	-10.0	-7.5	-5.5	-1.9	-0.8	-0.8	+1.0	+2.0	+7.0	+8.6	+9.4	+10.0	
30.0	45	-10.0	-9.9	-7.1	-6.6	-2.9	-1.1	+0.3	+2.2	+3.7	+4.9	+7.5	+8.0	

IRIG RANGE REFERENCE ATMOSPHERE, JUNE

TABLE II.3.6.

STATION	ELEVATION MSL (meters)	LOCATION		PERIOD OF DATA		WIND MERIDIONAL COMPONENTS		FORT GREENE MISSILE RANGE LAUNCH SITE						
		LATITUDE	LONGITUDE	JAN 1956 TO JAN 1961	UNITS: WIND SPEED - m/sec	CUMULATIVE	PERCENTAGE							
LAUNCH SITE-FORT GREENLY	392	64° 49' N	147° 52' W	1.0	2.28	5.0	100	250	500	900	95.0	97.72	99.0	MAX.
ALT. (km) M MSL	OBS. M													
SFC	577	-28.0	-6.2	-4.8	-3.8	-2.1	-0.6	+0.2	+2.0	+2.8	+3.7	+4.8	+7.0	+7.0
0.5	585	-10.0	-7.0	-6.1	-5.1	-3.8	-1.9	-0.5	+0.6	+2.3	+3.3	+4.2	+5.7	+8.0
1.0	582	-12.0	-7.6	-6.3	-5.1	-3.9	-1.8	-0.5	+0.7	+2.8	+4.4	+5.9	+7.7	+12.0
1.5	574	-12.0	-7.6	-6.2	-5.1	-4.2	-1.9	-0.4	+1.4	+3.5	+5.0	+6.6	+10.5	+13.0
2.0	561	-14.0	-7.7	-6.5	-5.1	-4.2	-2.1	-0.3	+1.9	+5.0	+6.8	+8.5	+9.8	+15.0
2.5	545	-11.0	-9.1	-7.7	-6.0	-4.6	-2.1	-0.1	+2.6	+5.6	+7.9	+10.6	+11.6	+17.0
3.0	530	-15.0	-10.2	-8.5	-6.3	-4.5	-1.7	+0.0	+2.9	+5.9	+9.0	+11.2	+14.5	+20.0
4.0	506	-17.0	-12.2	-9.1	-7.0	-5.1	-1.4	+0.6	+3.5	+6.7	+8.5	+11.3	+14.9	+22.0
5.0	483	-17.0	-13.7	-10.7	-8.7	-6.2	-1.8	+0.8	+5.0	+8.2	+9.8	+14.3	+16.3	+24.0
6.0	466	-25.0	-17.1	-13.6	-10.7	-7.5	-2.7	+1.3	+6.0	+10.4	+13.7	+16.3	+18.4	+25.0
7.0	446	-24.0	-20.5	-16.8	-13.4	-10.0	-0.9	+1.1	+6.8	+13.0	+16.9	+20.2	+22.7	+29.0
8.0	427	-10.0	-24.6	-21.6	-15.6	-12.0	-0.4	+2.0	+8.4	+14.7	+18.5	+23.3	+25.7	+47.0
9.0	407	-38.0	-27.9	-26.2	-19.9	-14.0	-5.7	+2.0	+9.1	+15.7	+20.2	+25.8	+28.9	+57.0
10.0	390	-43.0	-32.0	-27.0	-21.2	-14.5	-4.5	+2.5	+9.0	+15.1	+19.3	+24.5	+34.5	+55.0
11.0	378	-44.0	-29.5	-25.1	-18.6	-12.2	-2.8	+2.1	+6.4	+11.0	+17.7	+22.6	+24.8	+42.0
12.0	365	-39.0	-26.3	-21.6	-16.5	-11.3	-1.9	+2.0	+5.1	+9.7	+13.2	+17.2	+23.3	+42.7
13.0	356	-25.0	-19.4	-14.8	-12.6	-6.0	-0.9	+1.3	+4.3	+7.1	+9.8	+13.6	+19.2	+42.5
14.0	350	-23.0	-17.4	-14.0	-10.1	-5.0	-0.8	+1.3	+3.7	+5.9	+8.2	+10.0	+16.5	+29.0
15.0	345	-21.0	-14.5	-11.0	-8.3	-4.2	-0.7	+1.0	+2.9	+5.2	+5.7	+9.5	+10.8	+23.0
16.0	338	-23.0	-11.8	-9.1	-6.6	-4.1	-0.7	+1.0	+3.0	+5.1	+6.6	+8.7	+10.8	+23.0
17.0	330	-19.0	-9.8	-6.7	-5.3	-4.0	-0.8	+0.6	+2.9	+4.3	+5.4	+7.1	+8.7	+26.0
18.0	321	-21.0	-9.8	-6.7	-5.1	-3.1	-0.7	+0.5	+2.4	+4.1	+5.2	+6.1	+8.7	+19.0
19.0	314	-15.0	-9.4	-6.2	-5.2	-2.7	-0.7	+0.2	+1.8	+3.6	+4.6	+5.9	+7.2	+11.0
20.0	302	-17.0	-8.9	-5.8	-4.4	-2.7	-0.7	+0.0	+1.8	+3.3	+4.6	+5.6	+6.6	+11.0
21.0	284	-13.0	-9.1	-5.5	-4.2	-2.3	-0.9	+0.1	+1.7	+3.1	+4.2	+5.1	+6.1	+8.0
22.0	269	-12.0	-7.5	-5.6	-4.3	-2.6	-0.8	-0.1	+1.3	+2.8	+3.6	+4.6	+6.1	+10.0
23.0	246	-8.0	-7.5	-5.9	-4.1	-2.6	-0.9	-0.1	+1.3	+2.8	+3.8	+4.5	+6.1	+9.0
24.0	222	-11.0	-7.7	-4.7	-4.1	-2.5	-0.9	-0.1	+1.3	+2.7	+3.6	+4.6	+5.2	+9.0
25.0	199	-11.0	-9.8	-9.2	-4.7	-3.2	-1.2	-0.2	+1.5	+2.9	+4.1	+4.9	+7.0	+8.0
26.0	178	-17.0	-12.2	-6.9	-5.2	-3.2	-0.9	+0.0	+1.6	+3.2	+5.0	+5.8	+6.4	+7.0
27.0	150	-16.0	-13.5	-7.5	-4.3	-2.7	-0.7	-0.0	+1.4	+4.1	+5.1	+6.5	+7.7	+9.0
28.0	120	-19.0	-11.7	-6.6	-4.3	-3.0	-0.9	+0.1	+1.9	+4.0	+5.0	+5.8	+7.4	+9.0
29.0	104	-21.0	-12.9	-6.6	-4.9	-3.5	-1.6	-0.2	+1.5	+3.7	+4.6	+5.6	+6.4	+7.0
30.0	93	-20.3	-16.1	-5.9	-4.5	-2.6	-1.8	-0.6	+0.6	+2.6	+4.4	+5.5	+6.1	+7.0

# IRIG RANGE REFERENCE ATMOSPHERE, JULY

TABLE II.3.7

STATION			LOCATION			PERIOD OF DATA			WIND COMPONENTS						
			ELEVATION MSL (meters)		LATITUDE	LONGITUDE		JAN 1956 TO JAN 1961			FORT GREELY MISSILE RANGE LAUNCH SITE				
FAIRBANKS, ALASKA			134	64° 49' N	147° 52' W	392		63° 59' N	145° 43' W	UNITS: WIND SPEED - m/sec					
ALT. (km) MSL	NO. OBS.	MIN.	1.0	2.28	5.0	100	250	500	750	900	950	97.72	99.0	MAX.	
5.94	-8.0	-5.8	-4.9	-3.7	-2.8	-1.5	-0.4	+1.0	+2.5	+3.3	+3.9	+4.8	+23.0		
0.5	-8.0	-6.6	-5.5	-3.7	-2.4	-0.8	-0.1	+1.2	+2.7	+4.0	+5.9	+7.2	+13.0		
1.0	-7.0	-6.8	-5.7	-4.0	-2.6	-1.1	-0.1	+1.6	+3.5	+5.3	+6.9	+8.5	+19.0		
1.5	-9.0	-6.7	-5.3	-4.2	-3.1	-1.2	-0.1	+2.3	+5.1	+6.6	+8.3	+9.6	+13.0		
2.0	-11.0	-7.1	-6.3	-4.6	-3.4	-1.1	-0.4	+2.8	+5.6	+7.7	+10.1	+11.7	+20.0		
2.5	-12.0	-9.2	-7.6	-5.7	-3.8	-0.9	+0.7	+3.5	+6.8	+8.5	+11.5	+13.8	+20.0		
3.0	-13.0	-10.3	-7.9	-6.3	-4.3	-0.9	+0.7	+3.8	+6.7	+8.6	+10.9	+13.3	+18.0		
4.0	-15.0	-11.5	-9.9	-7.7	-6.9	-1.3	+0.9	+4.1	+6.9	+8.7	+11.2	+12.4	+17.0		
4.5	-20.0	-13.6	-11.6	-8.8	-5.8	-1.4	+1.1	+4.7	+8.0	+9.8	+13.0	+14.1	+18.0		
5.0	-33.0	-16.5	-13.2	-9.9	-6.6	-1.9	+1.1	+5.5	+9.6	+11.7	+14.2	+15.9	+21.0		
7.0	-34.0	-24.2	-17.6	-12.6	-8.0	-2.8	+1.1	+6.3	+10.6	+13.9	+15.8	+18.3	+23.0		
8.0	-40.3	-26.9	-17.4	-12.9	-9.6	-3.2	+1.5	+7.3	+12.0	+15.9	+19.9	+22.2	+31.0		
9.0	-53.0	-30.1	-24.5	-17.5	-11.4	-4.4	+1.4	+7.7	+13.0	+16.9	+21.0	+24.5	+31.0		
10.0	-47.0	-30.4	-25.6	-17.8	-13.3	-5.5	-0.6	+7.2	+12.6	+18.5	+23.1	+26.1	+32.0		
11.0	-45.0	-30.3	-23.2	-18.1	-12.6	-6.1	-0.0	+6.2	+10.8	+14.9	+20.4	+24.6	+36.0		
12.0	-40.0	-20.1	-16.9	-14.3	-9.5	-5.7	-0.1	+4.4	+8.7	+11.8	+14.7	+21.4	+43.0		
13.0	-30.0	-13.1	-16.5	-11.5	-7.4	-3.8	-0.4	+3.3	+6.7	+8.7	+10.6	+14.5	+30.0		
14.0	-27.0	-12.7	-10.8	-8.2	-5.8	-3.1	-0.2	+2.6	+5.3	+7.3	+8.2	+9.6	+23.0		
15.0	-20.0	-10.3	-8.6	-7.0	-5.0	-2.3	-0.3	+2.2	+5.1	+6.6	+7.9	+8.7	+18.0		
16.0	-8.0	-6.6	-5.2	-4.2	-3.4	-1.7	-0.2	+2.0	+4.4	+5.6	+7.2	+7.9	+14.0		
17.0	-10.0	-6.9	-6.3	-4.7	-3.4	-1.6	-0.1	+1.7	+4.3	+5.7	+7.2	+8.5	+18.0		
18.0	-7.0	-5.9	-4.9	-4.1	-3.2	-1.4	-0.1	+1.3	+3.4	+4.7	+5.7	+6.9	+12.0		
19.0	-30.7	-6.0	-5.3	-4.2	-3.1	-1.4	-0.1	+1.2	+2.8	+4.0	+5.4	+6.3	+9.0		
20.0	-29.9	-6.0	-5.2	-3.9	-3.0	-1.3	-0.3	+0.9	+2.6	+3.9	+5.5	+7.5	+14.0		
21.0	-29.4	-11.0	-6.0	-4.7	-3.8	-2.8	-1.2	-0.4	+0.7	+2.4	+3.4	+4.8	+10.0		
22.0	-28.4	-7.0	-5.1	-4.6	-3.8	-2.7	-1.3	-0.3	+0.7	+2.2	+3.2	+4.5	+6.0		
23.0	-26.6	-7.0	-5.5	-4.7	-3.7	-2.8	-1.2	-0.4	+0.6	+1.7	+2.8	+4.4	+5.4		
24.0	-25.2	-6.0	-4.6	-4.0	-3.4	-2.5	-1.0	-0.3	+0.5	+1.8	+2.8	+4.5	+5.4	+7.0	
25.0	-22.8	-6.0	-4.9	-4.5	-3.7	-2.7	-1.4	-0.4	+0.4	+2.1	+3.2	+3.9	+5.5	+7.0	
26.0	-19.4	-7.0	-5.5	-4.6	-3.6	-2.8	-1.6	-0.6	+0.2	+2.1	+3.8	+4.8	+7.0	+8.0	
27.0	-16.6	-6.0	-5.8	-5.3	-3.9	-2.7	-1.5	-0.5	+0.4	+2.3	+3.5	+4.7	+5.4	+6.0	
28.0	-13.8	-6.0	-4.9	-4.4	-3.6	-2.7	-1.2	-0.3	+0.3	+2.4	+3.6	+4.9	+6.6	+8.0	
29.0	-11.0	-3.9	-3.6	-2.9	-2.1	-1.0	-0.3	+0.7	+2.1	+3.7	+4.8	+5.4	+6.6	+8.0	
30.0	-9.0	-3.9	-3.0	-2.2	-1.2	-0.2	-0.4	+0.6	+2.4	+3.3	+4.3	+6.9	+8.0	+9.0	

IRIG RANGE REFERENCE ATMOSPHERE, AUGUST

TABLE IT.3.8

STATION			ELEVATION M.S.L. (meter <sup>e</sup> )		LOCATION		PERIOD OF DATA				MERIDIONAL WIND COMPONENTS				
FAIRBANKS, ALASKA			134		64° 49' N 147° 52' W		JAN 1956 TO JAN 1961				FORT GREENY MISSILE RANGE LAUNCH SITE				
ALT. (km) MSL	NO. OBS.	MIN.	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0	MAX.	
UNITS: WIND SPEED - m/sec															
SFC	573	-5.0	-4.9	-4.6	-3.9	-3.0	-1.6	-0.5	+0.4	+2.1	+2.8	+3.7	+4.6	+6.0	
-2.5	-5.5	-6.0	-5.0	-4.4	-3.5	-2.5	-1.0	-0.2	+1.0	+2.6	+3.9	+5.1	+6.1	+11.0	
1.0	5	-6.0	-6.0	-4.8	-4.3	-3.5	-0.8	+0.1	+2.0	+4.0	+5.3	+7.3	+8.8	+13.0	
-1.5	-5.7	-6.0	-5.3	-4.5	-3.2	-2.1	-0.6	+1.0	+3.4	+5.8	+7.2	+8.6	+9.9	+18.0	
2.0	5.0	-8.0	-5.5	-4.6	-3.5	-2.0	-0.5	+1.8	+4.5	+7.4	+10.0	+11.6	+14.2	+20.0	
-2.5	501	-11.3	-7.4	-5.7	-3.7	-2.3	-0.4	+2.2	+5.2	+8.6	+10.6	+13.7	+15.9	+28.0	
3.0	483	-10.0	-9.0	-6.3	-4.5	-2.6	-0.4	+2.1	+5.4	+8.7	+11.5	+13.9	+16.5	+23.0	
-4.0	449	-21.0	-14.2	-7.6	-5.9	-4.1	-0.6	+2.2	+5.6	+8.9	+11.1	+12.7	+14.5	+22.0	
5.0	432	-19.0	-13.6	-11.2	-8.0	-5.3	-0.9	+2.7	+6.4	+10.2	+12.3	+14.7	+16.8	+23.0	
-6.0	417	-28.0	-16.9	-15.2	-10.7	-6.8	-1.4	+2.5	+7.1	+12.1	+15.3	+17.7	+22.4	+32.0	
7.0	399	-28.0	-25.0	-18.6	-13.5	-9.0	-2.5	+2.8	+8.0	+14.0	+17.3	+19.6	+27.0	+33.0	
-8.0	382	-36.0	-29.1	-26.1	-15.2	-11.3	-3.7	+2.5	+8.9	+15.7	+19.9	+26.7	+31.1	+38.0	
9.0	364	-39.0	-27.6	-25.2	-18.3	-11.3	-4.2	+2.8	+10.2	+16.1	+21.7	+28.7	+33.3	+42.0	
-10.0	349	-34.0	-30.6	-26.7	-21.3	-18.2	-12.2	-4.3	+2.6	+9.5	+15.0	+21.7	+33.3	+35.7	+46.0
11.0	340	-25.0	-24.2	-20.2	-16.0	-10.6	-4.0	+2.0	+8.7	+15.0	+19.0	+26.1	+31.6	+38.0	
-12.0	334	-32.0	-21.6	-17.4	-11.0	-8.2	-2.8	+1.5	+6.2	+12.2	+16.2	+20.1	+29.1	+39.0	
13.0	320	-24.0	-17.7	-11.3	-10.1	-7.0	-2.4	+1.0	+4.8	+8.0	+12.0	+16.3	+19.8	+22.0	
-14.0	310	-25.0	-11.8	-10.2	-8.0	-5.8	-1.8	+1.2	+4.2	+7.6	+10.1	+13.9	+14.9	+18.0	
15.0	306	-27.0	-9.6	-8.3	-6.9	-5.0	-1.4	+1.0	+3.7	+6.0	+7.9	+10.3	+11.9	+22.0	
-16.0	306	-27.0	-8.2	-6.8	-5.8	-3.7	-1.4	+1.0	+2.9	+4.9	+6.3	+8.9	+18.0		
17.0	299	-10.0	-8.3	-6.5	-5.1	-3.7	-1.4	+0.6	+2.5	+4.4	+5.2	+7.2	+10.0	+22.0	
-18.0	291	-7.0	-6.3	-5.7	-4.6	-3.1	-0.9	+0.4	+2.2	+3.9	+5.4	+6.3	+7.0	+26.0	
19.0	279	-9.0	-5.4	-4.7	-3.8	-2.7	-0.9	+0.1	+1.9	+3.4	+4.0	+4.9	+5.8	+10.0	
-20.0	276	-9.0	-5.8	-5.1	-3.8	-2.8	-0.1	+0.2	+1.6	+2.8	+3.5	+3.9	+5.2	+9.0	
21.0	270	-7.0	-6.1	-4.7	-3.4	-2.4	-0.9	-0.2	+1.0	+2.6	+3.5	+4.4	+5.1	+6.0	
-22.0	261	-5.0	-4.3	-3.5	-2.7	-2.1	-0.9	-0.2	+0.8	+2.3	+3.1	+4.0	+5.1	+7.0	
23.0	240	-7.0	-5.5	-3.8	-3.0	-2.3	-1.0	-0.3	+0.7	+1.9	+2.7	+3.7	+4.4	+5.0	
-24.0	213	-7.0	-4.9	-4.0	-2.9	-2.1	-1.1	-0.4	+0.5	+1.9	+2.7	+3.3	+3.8	+5.0	
25.0	183	-7.0	-6.1	-4.4	-3.4	-2.5	-1.2	-0.4	+0.5	+1.6	+2.1	+2.9	+4.1	+6.0	
-26.0	157	-7.0	-6.4	-5.2	-3.5	-2.6	-1.1	-0.4	+0.4	+1.5	+2.0	+3.4	+6.4	+8.0	
27.0	127	-4.0	-3.8	-3.4	-2.6	-1.1	-0.4	+0.2	+1.7	+2.6	+3.5	+4.7	+12.0		
-28.0	99	-4.0	-3.6	-3.0	-2.4	-0.9	-0.4	+0.3	+1.6	+2.6	+3.2	+4.0	+5.6		
29.0	74	-5.0	-4.3	-3.1	-1.9	-0.9	-0.4	+0.4	+1.6	+2.7	+2.8	+4.2	+5.0		
-30.0	51	-4.0	-2.7	-1.0	-0.4	-0.4	+0.3	+0.9	+1.8	+2.8	+11.4	+12.0			

IRIG RANGE REFERENCE ATMOSPHERE, SEPTEMBER TABLE II.3.9

STATION				LOCATION				PERIOD OF DATA				MERIDIONAL WIND COMPONENTS			
FAIRBANKS, ALASKA				134 64° 49' N 147° 52' W				JAN 1956 TO JAN 1961				FORT GREELY MISSILE RANGE LAUNCH SITE			
LAUNCH SITE-FORT GREELY				392 63° 59' N 145° 43' W				CUMULATIVE FREQUENCY				WIND SPEED - m/sec			
ALT. (km)	NO. OBS.	MIN.	MSL	10	2.28	5.0	10.0	250	500	750	900	95.0	97.72	99.0	MAX
SFC	569	-7.0	-6.0	-5.5	-4.6	-3.7	-2.2	-0.7	+0.1	+2.1	+2.7	+3.7	+4.7	+4.7	+9.0
0.5	556	-8.0	-6.5	-5.0	-3.9	-2.8	-0.9	-0.2	+0.9	+2.6	+3.8	+5.4	+5.9	+11.0	+11.0
1.0	551	-10.0	-6.1	-4.7	-3.5	-2.4	-0.7	+0.3	+2.5	+5.1	+6.8	+8.6	+11.4	+23.0	+23.0
1.5	537	-10.0	-6.6	-4.8	-3.0	-2.1	-0.6	+1.2	+4.0	+7.3	+8.9	+11.3	+13.6	+25.0	+25.0
2.0	511	-9.0	-7.2	-5.0	-3.7	-2.0	-0.4	+1.8	+5.3	+8.6	+10.4	+12.2	+13.9	+25.0	+25.0
2.5	498	-12.2	-8.0	-5.8	-4.1	-2.2	-0.3	+2.1	+5.6	+9.2	+11.3	+13.8	+16.6	+19.0	+19.0
3.0	482	-14.0	-7.3	-5.8	-4.4	-2.4	-0.2	+2.3	+5.6	+10.2	+12.7	+14.5	+19.0	+25.0	+25.0
4.0	464	-16.0	-10.3	-7.2	-5.8	-3.2	-0.5	+2.7	+6.6	+11.2	+14.9	+18.6	+21.1	+27.0	+27.0
5.0	448	-19.0	-12.2	-9.2	-6.7	-4.6	-0.7	+2.9	+7.6	+13.7	+18.4	+23.2	+26.1	+30.0	+30.0
6.0	426	-23.0	-13.7	-9.7	-7.7	-5.0	-0.9	+3.0	+9.0	+16.3	+19.9	+24.7	+29.3	+42.0	+42.0
7.0	402	-22.0	-15.9	-12.9	-10.4	-6.6	-1.6	+3.2	+9.8	+17.8	+23.4	+29.8	+35.4	+51.0	+51.0
8.0	379	-26.0	-22.1	-16.6	-13.5	-8.9	-2.4	+3.3	+11.2	+19.3	+26.2	+31.8	+37.6	+53.0	+53.0
9.0	348	-28.0	-20.7	-17.6	-15.5	-10.5	-3.5	+3.0	+11.3	+20.8	+24.9	+37.0	+47.5	+61.0	+61.0
10.0	330	-35.0	-28.2	-21.4	-14.5	-9.3	-3.3	+2.5	+11.3	+19.4	+25.2	+37.4	+47.7	+61.0	+61.0
11.0	316	-35.0	-22.8	-14.9	-11.7	-8.4	-2.4	+2.1	+7.0	+15.0	+22.0	+29.3	+32.8	+50.0	+50.0
12.0	309	-30.0	-20.9	-12.0	-10.5	-6.7	-2.1	+1.4	+6.7	+13.7	+18.5	+22.4	+27.9	+34.0	+34.0
13.0	301	-21.0	-12.9	-11.0	-8.2	-5.2	-0.9	+1.1	+5.7	+10.9	+15.9	+20.0	+22.9	+28.0	+28.0
14.0	293	-14.0	-9.6	-8.1	-6.5	-4.2	-1.1	+1.2	+5.2	+10.3	+12.8	+16.4	+20.3	+41.0	+41.0
15.0	287	-10.0	-8.1	-7.4	-5.5	-3.8	-0.9	+0.9	+4.8	+9.0	+11.7	+15.1	+17.1	+45.0	+45.0
16.0	279	-10.0	-8.6	-5.9	-4.6	-3.2	-1.8	+1.3	+4.2	+8.4	+10.4	+13.6	+14.8	+31.0	+31.0
17.0	274	-16.0	-5.8	-5.3	-4.3	-3.0	-0.7	+1.2	+4.0	+7.0	+9.3	+10.9	+13.6	+18.0	+18.0
18.0	272	-6.0	-6.0	-4.5	-3.7	-2.6	-0.6	+1.2	+3.4	+6.7	+7.9	+10.5	+12.1	+21.0	+21.0
19.0	264	-12.0	-7.3	-5.9	-3.5	-2.3	-0.7	+0.7	+3.2	+6.2	+8.3	+9.7	+12.3	+24.0	+24.0
20.0	257	-9.0	-7.6	-6.5	-3.8	-2.1	-0.6	+0.8	+2.7	+5.8	+7.5	+8.5	+11.4	+20.0	+20.0
21.0	249	-8.0	-7.7	-5.3	-3.7	-2.4	-0.6	+0.7	+2.7	+5.2	+7.5	+9.6	+11.5	+21.0	+21.0
22.0	237	-10.0	-8.6	-5.5	-4.2	-2.6	-0.6	+0.7	+2.6	+4.4	+6.7	+9.8	+13.6	+23.0	+23.0
23.0	221	-9.0	-7.3	-5.9	-4.7	-2.8	-0.6	+0.9	+2.9	+4.8	+6.5	+8.7	+10.8	+25.0	+25.0
24.0	190	-9.0	-7.0	-5.8	-4.5	-3.1	-0.7	+0.7	+2.5	+4.7	+5.7	+6.6	+9.0	+10.0	+10.0
25.0	160	-9.0	-6.1	-5.1	-3.5	-0.7	+0.2	+0.2	+2.3	+4.5	+6.0	+6.8	+7.7	+11.0	+11.0
26.0	134	-9.0	-8.4	-5.6	-2.9	-0.7	+0.5	+3.1	+4.6	+5.7	+6.5	+6.9	+9.0	+9.0	+9.0
27.0	95	-14.0	-8.9	-5.6	-3.9	-1.4	+0.3	+2.6	+4.9	+5.8	+7.8	+8.5	+9.0	+9.0	+9.0
28.0	73	-10.0	-9.3	-6.5	-4.6	-1.1	+1.0	+2.9	+4.9	+6.6	+7.6	+8.2	+9.0	+9.0	+9.0
29.0	52	-11.0	-8.3	-4.9	-1.3	-0.1	+2.8	+7.2	+8.4	+10.4	+10.7	+11.0	+11.0	+11.0	+11.0
30.0	41	-13.0	-6.9	-4.6	-1.6	+1.6	+3.8	+6.4	+7.9	+12.0	+12.5	+13.0	+13.0	+13.0	+13.0

IRIG RANGE REFERENCE ATMOSPHERE, OCTOBER TABLE II.3.10

STATION				LOCATION				PERIOD OF DATA				WIND COMPONENTS			
FAIRBANKS, ALASKA				64° 49' N 147° 52' W				JAN 1956 TO JAN 1961				FORT GREENY MISSILE RANGE LAUNCH SITE			
LAUNCH SITE-FORT GREENY				392 63° 59' N 145° 43' W				UNITS: WIND SPEED - m/sec							
ALT. (km)	NO. OBS.	MIN.		1.0	2.28	5.0	100	250	500	750	900	95.0	97.72	99.0	MAX.
SFC	52.3	-7.0		-5.9	-5.6	-4.9	-4.2	-2.8	-0.9	-0.1	+1.2	+2.2	+2.9	+3.6	+6.0
0.5	50.0	-10.0		-5.7	-4.8	-3.9	-3.3	-1.6	-0.5	+0.5	+1.9	+3.0	+4.4	+5.3	+11.0
1.0	48.5	-9.0		-6.3	-4.9	-3.5	-2.4	-0.8	+0.3	+2.6	+5.0	+6.5	+7.8	+9.0	+14.0
1.5	47.2	-10.0		-6.8	-4.4	-4.4	-2.9	-0.8	+1.0	+3.6	+6.5	+8.9	+10.6	+11.8	+15.0
2.0	45.5	-10.0		-7.9	-6.9	-5.3	-3.7	-0.8	+1.3	+4.6	+8.2	+9.8	+11.8	+13.4	+20.0
2.5	43.9	-14.0		-8.5	-7.4	-5.8	-4.4	-0.8	+2.0	+5.6	+9.9	+12.2	+14.3	+17.2	+20.0
3.0	43.0	-17.0		-11.2	-8.9	-7.4	-5.7	-0.9	+2.1	+6.3	+10.0	+13.0	+15.5	+16.9	+20.0
4.7	41.1	-24.0		-17.8	-13.2	-9.8	-6.8	-0.8	+2.8	+7.0	+11.3	+14.1	+16.5	+18.6	+28.0
5.0	38.5	-33.0		-21.1	-17.6	-12.7	-8.1	-0.8	+3.1	+8.3	+13.0	+15.9	+20.0	+21.3	+23.0
6.0	36.1	-45.0		-26.3	-18.8	-14.4	-9.6	-1.1	+3.8	+15.7	+21.5	+28.3	+32.3	+35.0	
7.0	33.5	-46.0		-32.6	-21.3	-16.0	-11.0	-1.8	+3.8	+11.5	+17.4	+21.5	+23.3	+27.5	+32.0
8.0	31.5	-53.0		-24.9	-19.8	-15.8	-10.8	-2.5	+3.8	+10.7	+17.8	+23.2	+27.6	+33.8	+35.0
9.0	29.5	-49.0		-35.0	-24.2	-18.7	-12.8	-3.1	+3.4	+10.8	+16.8	+21.4	+26.2	+35.5	+43.0
10.0	28.2	-60.0		-31.1	-24.2	-17.8	-11.1	-2.5	+3.7	+9.4	+15.7	+19.9	+22.7	+33.1	+39.0
11.7	26.5	-26.0		-24.7	-22.4	-15.9	-10.0	-2.1	+3.0	+7.8	+11.9	+16.6	+28.9	+33.3	+37.0
12.5	25.4	-30.0		-24.4	-16.6	-12.6	-8.3	-1.1	+3.1	+7.2	+11.7	+14.6	+20.2	+25.4	+37.0
13.0	24.4	-28.0		-18.8	-17.7	-11.8	-7.9	-1.3	+3.4	+7.1	+10.7	+12.7	+16.1	+17.2	+35.0
14.0	23.6	-25.0		-19.6	-18.2	-10.0	-6.6	-0.9	+2.6	+6.3	+9.9	+12.5	+14.3	+16.8	+18.0
15.0	22.9	-22.0		-19.7	-13.7	-8.9	-5.8	-0.8	+2.5	+6.2	+9.4	+11.7	+14.7	+17.7	+27.0
16.0	21.5	-22.0		-14.8	-11.5	-7.6	-5.2	-0.7	+1.8	+5.3	+8.9	+11.0	+12.0	+16.8	+22.0
17.0	20.6	-20.0		-14.9	-12.4	-8.8	-5.2	-0.7	+2.0	+4.9	+7.9	+10.5	+12.5	+13.9	+16.0
18.0	19.6	-14.0		-10.7	-9.0	-4.8	-0.8	+1.5	+4.6	+8.0	+10.0	+11.8	+15.0	+17.0	
19.0	18.8	-18.0		-16.1	-12.3	-9.5	-4.7	-0.9	+1.1	+3.8	+7.2	+9.5	+11.8	+14.5	+15.0
20.0	17.7	-17.0		-12.2	-10.9	-9.0	-5.5	-1.1	+0.8	+3.7	+7.3	+9.3	+11.9	+14.2	+17.0
21.0	16.6	-18.0		-16.6	-12.2	-7.4	-5.5	-1.9	+0.2	+3.3	+6.6	+10.5	+13.1	+14.3	+22.0
22.0	15.2	-14.0		-11.8	-8.8	-6.1	-3.0	-0.4	+2.5	+5.6	+8.0	+8.9	+11.4	+15.0	
23.0	13.4	-16.0		-12.8	-12.3	-9.2	-4.9	-2.6	-0.6	+1.5	+5.7	+7.3	+9.3	+9.8	+15.0
24.0	11.4	-17.0		-12.9	-12.6	-9.6	-6.1	-2.8	-0.7	+1.2	+5.6	+8.6	+10.7	+11.8	+14.0
25.0	9.4	-21.0		-13.8	-10.6	-5.2	-2.9	-0.6	+1.1	+4.9	+7.1	+8.8	+10.0	+11.0	
26.0	7.1	-24.0		-16.3	-13.2	-6.9	-4.1	-1.0	+0.3	+3.7	+7.4	+11.1	+11.6	+12.0	
27.0	5.5	-19.0		-12.6	-6.5	-3.7	-0.9	+0.5	+3.2	+5.2	+8.7	+13.4	+14.0		
28.0	3.4	-21.0		-19.2	-9.5	-5.2	-3.0	-0.2	+2.2	+6.3	+13.2	+13.6	+14.0		
29.0	2.2	-23.0		-21.8	-12.8	-9.4	-6.0	-0.7	+2.8	+3.9	+6.4	+6.7	+7.0		
30.0	1.2	-29.0		-14.8	-14.0	-8.0	-4.0	-2.1	+4.4	+4.7	+4.8	+5.0			

IRIG RANGE REFERENCE ATMOSPHERE, NOVEMBER TABLE II.3.11

STATION				ELEVATION M.S.L. (meters)			LOCATION		PERIOD OF DATA			WIND COMPONENTS		
FAIRBANKS, ALASKA				134			64° 49' N 147° 52' W		JAN 1956 TO JAN 1961			FORT GREENLY MISSILE RANGE LAUNCH SITE		
LAUNCH SITE-FORT GREENLY				392			63° 59' N 145° 43' W		UNITS: WIND SPEED - m/sec			MAX.		
ALT. (km) MSL	NO. OBS.	MIN.		1.0	2.28	5.0	100	250	500	750	900	950	97.72	99.0
5.51	-8.0	-5.6	-5.0	-4.5	-3.7	-2.3	-0.8	-0.2	+0.4	+1.2	+1.9	+3.4	+5.0	+5.0
5.35	-9.0	-4.9	-4.4	-3.5	-2.6	-1.2	-0.4	+0.6	+2.0	+3.4	+4.8	+6.6	+10.0	+10.0
5.26	-7.0	-4.2	-3.6	-2.7	-1.7	-0.5	+1.1	+3.2	+5.7	+7.2	+8.8	+10.8	+16.0	+16.0
5.10	-5.5	-6.1	-4.7	-3.6	-2.5	-0.7	+1.3	+4.5	+7.6	+9.4	+11.9	+14.8	+20.0	+20.0
4.96	-11.0	-7.3	-6.2	-4.8	-3.4	-0.8	+1.7	+5.3	+9.1	+11.0	+14.3	+17.2	+25.0	+25.0
4.79	-12.0	-8.1	-7.1	-5.0	-3.4	-0.7	+2.1	+5.8	+9.6	+13.0	+15.5	+19.2	+24.0	+24.0
4.69	-11.0	-9.4	-7.8	-5.8	-4.0	-0.6	+2.4	+6.3	+10.5	+14.1	+17.4	+18.8	+28.0	+28.0
4.0	-18.0	-16.6	-11.0	-8.3	-4.5	-0.3	+3.3	+7.6	+11.6	+13.9	+18.0	+20.6	+24.0	+24.0
5.0	-24.0	-19.5	-15.8	-10.2	-6.0	-0.4	+3.7	+8.5	+13.2	+16.3	+19.9	+24.9	+32.0	+32.0
6.0	-33.0	-22.0	-19.1	-12.6	-7.3	-0.6	+3.6	+9.5	+16.2	+20.2	+24.6	+27.1	+37.0	+37.0
7.0	-38.0	-27.4	-21.8	-15.8	-8.7	-0.9	+4.4	+11.0	+18.4	+23.1	+24.9	+26.7	+49.0	+49.0
8.0	-42.0	-29.5	-23.1	-15.8	-7.2	-0.2	+4.2	+10.7	+17.7	+23.9	+31.5	+37.5	+54.0	+54.0
9.0	-50.0	-32.8	-20.8	-15.0	-8.2	-0.7	+3.7	+9.3	+15.8	+22.7	+28.8	+34.8	+59.0	+59.0
10.0	-42.0	-24.9	-18.1	-11.9	-6.3	-0.4	+3.4	+7.7	+14.1	+18.5	+28.1	+30.9	+42.0	+42.0
11.0	-28.8	-40.0	-24.0	-17.4	-9.7	-0.5	+4.5	+12.5	+15.7	+19.4	+29.1	+36.0	+36.0	+36.0
12.0	-29.0	-23.0	-24.0	-16.2	-8.9	-0.3	+2.8	+5.2	+11.2	+13.9	+15.8	+22.1	+33.0	+33.0
13.0	-22.0	-21.1	-10.9	-8.1	-4.5	-0.6	+2.6	+6.1	+11.3	+13.8	+17.5	+20.6	+25.0	+25.0
14.0	-18.0	-12.3	-10.5	-7.8	-4.6	-0.6	+2.3	+6.5	+11.7	+14.1	+16.9	+22.3	+27.0	+27.0
15.0	-16.0	-15.1	-11.0	-8.4	-4.7	-0.9	+1.8	+6.0	+10.2	+12.0	+14.5	+18.4	+30.0	+30.0
16.0	-21.0	-18.4	-12.1	-8.7	-5.2	-1.5	+1.9	+6.1	+10.2	+12.4	+16.0	+20.4	+30.0	+30.0
17.0	-19.0	-12.5	-10.8	-8.9	-6.6	-2.1	+1.3	+6.1	+9.6	+12.3	+13.8	+15.5	+23.0	+23.0
18.0	-24.4	-17.0	-13.2	-10.4	-7.1	-3.4	+1.1	+5.6	+9.4	+13.4	+15.6	+16.5	+26.0	+26.0
19.0	-22.8	-21.0	-15.7	-13.9	-11.7	-8.0	-4.3	-0.1	+5.8	+9.8	+11.9	+15.2	+16.7	+19.0
20.0	-21.6	-21.0	-16.8	-14.0	-12.0	-8.2	-4.5	-0.2	+4.8	+8.9	+12.3	+15.0	+18.8	+25.0
21.0	-27.0	-21.9	-19.2	-13.8	-10.3	-5.4	-0.3	+4.3	+9.1	+11.9	+16.2	+19.9	+29.0	+29.0
22.0	-19.0	-28.0	-22.0	-20.6	-12.8	-11.4	-7.0	-0.8	+4.2	+9.0	+11.6	+16.6	+29.0	+30.0
23.0	-17.5	-25.0	-24.2	-17.0	-15.7	-12.9	-7.9	-0.9	+3.7	+8.6	+11.2	+19.0	+26.2	+30.0
24.0	-16.2	-40.0	-30.3	-22.1	-18.4	-15.2	-9.4	-2.0	+2.6	+8.8	+11.4	+17.3	+25.3	+31.0
25.0	-14.3	-27.0	-26.5	-25.3	-22.9	-18.6	-9.3	-1.8	+2.8	+8.1	+11.9	+16.7	+29.5	+33.0
26.0	-12.7	-32.0	-28.7	-26.7	-25.8	-17.6	-12.1	-2.4	+2.6	+6.8	+11.6	+20.1	+24.7	+31.0
27.0	9.8	-36.0	-31.4	-27.5	-25.7	-13.2	-5.4	+2.8	+6.2	+13.0	+13.9	+20.0	+21.0	+21.0
28.0	6.9	-37.0	-36.4	-31.7	-27.5	-11.7	-3.7	+1.4	+9.1	+12.5	+15.4	+18.3	+19.0	+19.0
29.0	5.2	-36.0	-34.8	-32.3	-28.7	-19.6	-10.0	+0.5	+9.7	+15.1	+15.6	+15.8	+16.0	+16.0
30.0	4.1	-33.0	-31.9	-28.9	-18.7	-8.4	-0.1	+5.9	+14.9	+16.0	+16.5	+17.0	+17.0	+17.0

IRIG RANGE REFERENCE ATMOSPHERE, DECEMBER TABLE III.3.12

STATION			ELEVATION M <sub>SL</sub> (meters)			LOCATION			PERIOD OF DATA			WIND COMPONENTS		
ALT (km)	NO OBS.	MIN.	LAUNCH SITE-FORT GREENLY			63° 59' N 145° 43' W			JAN 1956 TO JAN 1961			FORT GREENLY RANGE LAUNCH SITE		
			1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0	MAX
SFC	595	-7.0	-5.5	-4.7	-4.0	-3.0	-1.3	-0.6	-0.2	-0.0	+0.4	+1.1	+1.8	+4.0
0.5	580	-8.0	-6.6	-5.4	-4.1	-3.0	-1.5	-0.6	-0.0	+1.0	+1.9	+3.0	+3.9	+11.0
1.0	572	-6.0	-5.7	-4.6	-3.7	-2.7	-1.2	-0.1	+2.1	+4.5	+6.4	+7.9	+10.2	+15.0
1.5	562	-10.0	-7.7	-6.5	-5.2	-3.6	-1.5	-0.2	+2.2	+3.2	+7.3	+9.8	+11.6	+19.0
2.0	537	-18.0	-12.5	-9.5	-7.5	-4.8	-1.7	+0.4	+4.3	+8.2	+11.0	+12.6	+14.3	+22.0
2.5	520	-19.0	-16.9	-11.0	-9.0	-6.0	-1.8	+1.3	+5.1	+9.3	+11.1	+14.0	+15.9	+23.0
3.0	509	-24.0	-17.9	-12.6	-10.2	-6.8	-1.6	+1.6	+5.6	+9.8	+11.8	+13.8	+17.4	+21.0
4.0	460	-38.0	-28.1	-19.5	-12.4	-7.8	-1.3	+2.2	+6.7	+11.5	+13.2	+16.1	+18.8	+23.0
5.0	423	-31.0	-27.8	-24.3	-14.6	-9.8	-1.0	+3.9	+8.0	+12.9	+16.7	+19.8	+26.3	+33.0
6.0	405	-41.0	-37.4	-27.1	-18.2	-10.5	-1.4	+4.8	+9.9	+15.4	+18.7	+22.8	+27.3	+36.0
7.0	392	-53.0	-38.0	-29.5	-20.5	-11.3	-1.6	+5.2	+11.1	+16.2	+20.1	+24.6	+29.6	+34.0
8.0	378	-53.2	-43.2	-31.1	-22.0	-12.5	-0.9	+5.2	+11.4	+18.6	+22.7	+25.3	+29.6	+38.0
9.0	361	-61.0	-34.3	-29.7	-17.9	-11.3	-0.9	+4.8	+11.0	+19.2	+21.9	+26.5	+31.6	+41.0
10.0	350	-37.0	-30.4	-25.0	-17.5	-11.4	-0.8	+4.2	+10.4	+16.4	+21.7	+26.5	+32.5	+52.9
11.0	338	-28.0	-25.6	-20.8	-15.0	-10.3	-0.8	+3.7	+9.6	+16.0	+19.7	+22.2	+28.3	+46.0
12.0	321	-27.0	-22.7	-18.8	-14.7	-9.8	-1.9	+3.7	+9.0	+14.1	+17.9	+20.8	+27.7	+38.0
13.0	305	-24.0	-21.9	-18.0	-13.9	-10.0	-0.9	+3.7	+8.7	+14.0	+16.3	+18.0	+20.9	+33.0
14.0	-288	-26.4	-22.1	-19.1	-16.2	-9.1	-2.1	+3.4	+8.1	+12.1	+15.0	+16.4	+18.5	+24.0
15.0	273	-26.0	-23.2	-18.7	-15.1	-11.6	-2.8	+2.9	+7.5	+11.6	+14.3	+16.9	+19.2	+23.0
16.0	260	-24.2	-23.4	-20.5	-17.7	-12.0	-3.4	+2.4	+7.8	+12.0	+14.2	+15.6	+17.2	+20.0
17.0	247	-28.0	-26.5	-25.3	-18.8	-14.0	-5.2	+2.1	+8.4	+12.6	+14.9	+16.6	+20.5	+24.0
18.0	240	-32.0	-28.8	-28.1	-22.0	-13.7	-6.6	+1.2	+7.7	+12.0	+14.8	+19.5	+23.6	+31.0
19.0	225	-34.0	-31.5	-29.4	-21.7	-16.8	-6.7	+0.1	+6.7	+11.9	+15.5	+17.9	+22.7	+29.0
20.0	208	-52.0	-30.6	-29.2	-22.5	-16.3	-6.3	+0.0	+7.0	+12.4	+14.9	+18.4	+19.9	+28.0
21.0	187	-42.0	-33.1	-28.7	-25.1	-19.5	-7.6	-0.8	+6.6	+13.4	+14.9	+16.8	+20.1	+25.0
22.0	170	-43.0	-31.2	-30.6	-27.5	-22.5	-9.1	-2.0	+6.7	+12.8	+15.5	+17.1	+21.3	+26.0
23.0	150	-37.0	-34.8	-34.1	-29.1	-21.0	-8.8	-1.8	+5.7	+13.6	+17.2	+20.2	+22.5	+24.0
24.0	129	-45.0	-40.7	-34.0	-29.5	-20.0	-9.8	-2.7	+6.9	+14.0	+17.7	+21.0	+22.7	+29.0
25.0	107	-50.0	-45.9	-35.5	-30.3	-20.6	-12.1	-4.7	+3.1	+14.7	+17.6	+19.5	+22.9	+27.0
26.0	78	-58.0	-53.2	-31.0	-23.3	-14.7	-5.1	+5.5	+17.1	+22.0	+23.2	+27.2	+28.0	
27.0	60	-38.0	-32.6	-29.0	-22.0	-16.6	-7.0	+6.5	+19.0	+26.0	+30.6	+32.4	+33.0	
28.0	42	-53.2	-34.4	-28.7	-18.1	-2.4	+6.5	+19.7	+23.9	+33.0	+33.5	+34.0		
29.0	22	-47.0	-32.8	-19.7	-12.2	+2.0	+9.5	+24.3	+26.4	+26.7	+27.0			
30.0	9	-1.0	-22	-4.2	-2.2	+4.5	+8.7	+30.0	+30.5	+30.7	+30.9	+31.0		

IRIG RANGE REFERENCE ATMOSPHERE, ANNUAL

TABLE II.3.13

STATION			ELEVATION MSL (meters)		LOCATION		PERIOD OF DATA		MERIDIONAL WIND COMPONENTS					
			LATITUDE		LONGITUDE		JAN 1956 TO JAN 1961		FORT GREENY MISSILE RANGE LAUNCH SITE					
LAUNCH SITE-FORT GREENY			392	63° 59' N	145° 43' W			UNITS: WIND SPEED - m/sec						
ALT. (km)	NO. OBS.	MIN.	1.0	2.28	5.0	10.0	25.0	50.0	75.0	90.0	95.0	97.72	99.0	MAX.
SFC	7085	-28.0	-5.9	-5.4	-4.	-3.7	-2.0	-0.7	-0.1	+1.5	+2.4	+3.2	+4.0	+23.0
0.5	6911	-12.0	-6.7	-5.6	-5.	-3.3	-1.5	-0.4	+0.6	+2.2	+3.3	+4.7	+6.0	+13.0
1.0	6803	-13.0	-6.6	-5.1	-	-2.7	-0.9	-0.0	+2.2	+4.5	+6.1	+7.8	+9.6	+23.0
1.5	6659	-23.0	-7.3	-5.9	-4.0	-3.1	-1.0	+0.5	+3.2	+6.2	+8.2	+10.2	+12.1	+25.0
2.0	6447	-18.0	-9.1	-7.4	5.5	-3.8	-1.1	+0.8	+4.0	+7.4	+9.8	+12.1	+14.4	+25.0
2.5	6249	-24.0	-11.0	-9.0	-6.8	-4.4	-1.1	+1.2	+4.7	+8.6	+11.0	+13.7	+16.4	+31.0
3.0	6108	-34.0	-13.2	-10.7	-7.8	-5.1	-1.1	+1.4	+5.1	+8.9	+11.6	+14.7	+17.2	+29.0
4.0	5716	-38.0	-17.2	-14.0	-10.0	-6.5	-1.4	+1.8	+5.8	+10.0	+12.8	+15.7	+18.9	+32.0
5.0	5390	-42.0	-22.5	-18.2	-12.6	-8.0	-1.8	+2.1	+6.9	+11.7	+15.2	+18.6	+22.7	+39.0
6.0	5137	-45.0	-26.6	-20.8	-15.0	-9.6	-2.4	+2.3	+8.1	+14.0	+17.6	+21.8	+26.1	+44.0
7.0	4861	-52.0	-30.5	-24.1	-17.4	-10.9	-3.1	+2.6	+9.0	+15.8	+20.4	+25.0	+29.4	+57.0
8.0	4594	-68.0	-33.4	-25.7	-19.0	-12.4	-3.8	+2.7	+9.7	+16.9	+22.0	+27.3	+33.5	+64.0
9.0	4326	-61.0	-34.4	-26.6	-19.5	-12.9	-4.0	+2.8	+9.5	+16.4	+22.0	+28.3	+36.1	+67.0
10.0	4143	-62.0	-30.7	-25.2	-18.9	-12.2	-3.8	+2.5	+8.6	+15.6	+20.8	+28.3	+35.3	+69.0
11.0	3967	-48.0	-28.6	-22.8	-16.2	-10.7	-3.2	+2.0	+7.3	+13.1	+18.0	+23.8	+30.0	+58.0
12.0	3837	-40.0	-23.7	-19.2	-13.8	-9.3	-2.7	+1.7	+6.2	+11.3	+15.0	+19.7	+25.9	+43.0
13.0	3710	-32.0	-21.2	-16.3	-12.0	-7.9	-2.4	+1.2	+5.5	+10.0	+13.1	+16.6	+19.9	+35.0
14.0	3588	-35.0	-19.1	-14.9	-11.0	-7.1	-2.1	+1.1	+4.9	+9.2	+11.9	+14.8	+17.6	+41.0
15.0	3493	-32.0	-19.8	-15.4	-10.5	-6.8	-2.1	+0.8	+4.5	+8.3	+10.9	+14.0	+16.5	+45.0
16.0	3405	-39.0	-21.7	-16.9	-10.8	-6.4	-2.0	+0.7	+3.9	+7.9	+10.8	+13.5	+16.4	+31.0
17.0	3311	-39.0	-24.6	-17.4	-10.7	-6.2	-2.0	+0.4	+3.7	+7.3	+10.2	+13.4	+16.4	+30.0
18.0	3223	-40.0	-26.6	-18.0	-11.4	-6.2	-2.1	+0.2	+3.2	+6.8	+9.5	+12.8	+15.6	+36.0
19.0	3081	-41.0	-27.2	-20.1	-12.1	-6.2	-2.1	-0.0	+2.7	+6.2	+9.1	+12.0	+15.0	+29.0
20.0	2941	-52.0	-28.8	-21.3	-12.7	-6.7	-2.3	-0.1	+2.2	+5.8	+8.4	+11.9	+14.6	+28.0
21.0	2798	-49.0	-31.7	-23.2	-13.3	-7.2	-2.5	-0.2	+2.1	+5.4	+8.2	+11.9	+14.9	+29.0
22.0	2627	-64.0	-33.8	-25.0	-14.4	-8.0	-2.7	-0.3	+1.8	+4.9	+7.8	+11.6	+15.2	+30.0
23.0	2416	-63.0	-38.2	-25.7	-15.8	-8.8	-2.8	-0.4	+1.6	+4.7	+7.3	+10.8	+15.6	+30.0
24.0	2115	-64.0	-40.5	-29.9	-17.2	-10.0	-2.9	-0.5	+1.4	+4.4	+6.9	+10.7	+14.6	+31.0
25.0	1811	-64.0	-43.6	-33.3	-19.8	-11.5	-3.5	-0.5	+1.3	+4.1	+6.6	+9.8	+15.3	+33.0
26.0	1537	-68.0	-46.9	-31.3	-22.2	-12.7	-3.6	-0.6	+1.3	+4.1	+6.9	+10.7	+16.9	+31.0
27.0	1176	-71.0	-42.6	-32.0	-20.8	-13.4	-3.5	-0.6	+1.1	+4.5	+6.8	+11.5	+18.3	+33.0
28.0	893	-55.0	-47.5	-34.8	-24.6	-15.5	-3.4	-0.6	+1.3	+4.3	+7.2	+12.1	+16.5	+34.0
29.0	635	-57.0	-45.6	-36.2	-26.2	-17.1	-3.6	-0.6	+1.0	+4.0	+7.3	+12.8	+16.6	+27.0
30.0	465	-59.0	-45.3	-39.3	-28.5	-17.3	-3.2	-0.7	+0.7	+4.0	+6.2	+12.3	+16.6	+31.0